96-162

AUTOMOTIVE AVERAGE FUEL ECONOMY STANDARDS

HEARINGS

BEFORE THE

SUBCOMMITTEE ON ENERGY AND POWER

OF THE

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE HOUSE OF REPRESENTATIVES

NINETY-SIXTH CONGRESS

SECOND SESSION

ON

H.R. 5140 and H.R. 5260

[Identical bills]

BILLS TO AMEND TITLE V OF THE MOTOR VEHICLE INFORMATION AND COST SAVINGS ACT

H.R. 5944

A BILL TO AMEND THE PROVISIONS OF LAW ENACTED BY PART A OF TITLE III OF THE ENERGY POLICY AND CONSERVATION ACT TO PROVIDE AN ALTERNATIVE MEANS FOR SMALL MANUFACTURERS TO MEET THE FUEL ECONOMY STANDARDS ESTABLISHED UNDER SUCH PROVISIONS

H.R. 6908

A BILL TO AMEND THE PROVISIONS OF LAW ENACTED BY PART A OF TITLE III OF THE ENERGY POLICY AND CONSERVATION ACT TO PROVIDE AN ALTERNATIVE MEANS FOR MANUFACTURERS TO MEET THE FUEL ECONOMY STANDARDS ESTABLISHED UNDER SUCH PROVISIONS, TO ENCOURAGE AN INCREASE OF THE DOMESTIC VALUE ADDED CONTENT IN LABOR AND MATERIALS OF FOREIGN AUTOMOBILES SOLD IN THE UNITED STATES, AND FOR OTHER PURPOSES

H.R. 6943

A BILL TO AMEND THE MOTOR VEHICLE INFORMATION AND COST SAVINGS ACT TO BENEFIT CONSUMERS BY ENCOURAGING AUTOMOTIVE FUEL CONSERVATION THROUGH EXTENDING THE CARRYOVER AND CARRYBACK PERIODS FOR FUEL ECONOMY CREDITS EARNED BY MANUFACTURERS, TO ENCOURAGE INCREASES IN THE AMOUNT OF LABOR AND MATERIALS ADDED IN THE UNITED STATES IN CONNECTION WITH THE MANUFACTURE OF AUTOMOBILES BY FOREIGN MANUFACTURERS, AND FOR OTHER PURPOSES

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AUTOMOTIVE AVERAGE FUEL ECONOMY STANDARDS

FRIDAY, MARCH 28, 1980

House of Representatives,
Subcommittee on Energy and Power,
Committee on Interstate and Foreign Commerce,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10 a.m. in room 2123, Rayburn House Office Building, Hon. Philip R. Sharp, presiding (Hon. John D. Dingell, chairman).

Mr. Sharp. The subcommittee will come to order.

Today we begin 2 days of hearings on several bills: H.R. 5140, H.R. 5944, H.R. 6908, and related bills, and a December 1979 proposal of the Department of Transportation that amends title V of the Motor Vehicle Information and Cost Savings Act. Title V was added to the act in 1975 when Congress enacted the Energy Policy and Conservation Act. It established the motor vehicle fuel economy program which has contributed significantly to achieving conservation in the use of gasoline and helping to reduce oil imports.

The U.S. auto industry is currently in the midst of a massive conversion program in response to the world oil crisis and the demand sparked in part by title V for more fuel efficient motor vehicles.

As Secretary Goldschmidt pointed out in a New York Times interview earlier this week: "The retooling of the industry will create the greatest economies and opportunities since World War II." Achieving such conversion will not be easy.

The EPCA fuel economy improvement schedule calls for year-by-year increases in fleet fuel economy but the industry has experienced sales, profit, cash flow, import penetration, unemployment and other effects since enactment of EPCA which are making this task of meeting the standards for the 1980's more difficult.

Specifically, today more than 200,000 auto workers are on indefinite layoff. Others employed in the supplier network for the auto industry are also joining the unemployment rolls. According to the Labor Department, motor vehicle related employment in my own State of Indiana dropped 20,000 in this past January. That is from January 1980 compared to January of 1979.

Last year Chrysler posted the largest operating loss in American corporate industry, $1.1 billion. Ford saw its profits decline by 26 percent and even GM reported an 18-percent decrease and, in the case of both Ford and GM, these figures are probably overstated because of the continued profitability of their overseas operations.

Auto imports reached the unprecedented sales level in 1979 of 2.3 million units in the United States, taking a 23 percent record share of the market in 1979.

Domestic sales are below hoped-for industry targets.

The bills before us today are aimed at providing some flexibility in the administration of the standards program. None affect the fuel economy standards or the statutory mandate to comply with them. The standards remain untouched, as they should.

The bills to be considered today include H.R. 5140, which I sponsored, known as the carryforward/carryback amendment—it will help manufacturers meet changing market demands without weakening conservation efforts. It would be available to all. It would provide an adjustment period in the event of a severe economic crunch or if one of the technologies the industry is counting on does not come through or is banned for some other reason.

It is a change that can be made without disturbing the goals Congress set forth which are so critical to our long term future.

Chairman Dingell has indicated his support for this amendment.

There are a number of issues to be considered today. For example, should the carryforward/carryback provisions apply to trucks. What progress is being made at DOT to establish standards for light duty trucks for the model year 1982 and thereafter and what problems have been identified relative to any manufacturer achieving any standard being considered?

What effect will any of the bills have on the consumption of motor fuels? Should the legislation include an exemption for manufacturers of less than 10,000 vehicles from the fuel economy standards?

Should this exemption be applicable to light duty trucks? Should the exemption be for just a limited time but with the assurance that such vehicles will ultimately have to comply with the standards?

The DOT proposal of December 1979 included a so-called local content change in the law that could have some trade and other adverse affects but which could help to encourage the building of some cars domestically which are now imported. We need to examine these effects.

Finally, we want to learn why DOT's fourth annual report to Congress on this program which usually is issued in January has been delayed.

Without objection, the text of the bills previously referred to and related bills will be printed at this point in the record.

[Testimony begins on p. 32.]

[The texts of H.R. 5140, H.R. 5260, H.R. 5944, H.R. 6908, H.R. 6943, and Executive Communication No. 3053 from the Department of Transportation, follow:]

[H.R. 5140, introduced by Mr. Sharp on August 2, 1979,
Cosponsored on October 22, 1979, by:
Mr. Staggers;
Cosponsored on December 6, 1979, by:
Mr. Edwards of Alabama, Mr. Flippo, Mr. Shelby, Mr. Badham, Mr. Dixon, Mr. Hawkins, Mr. Lagomarsino, Mr. Lungren, Mr. Kramer, Mr. Kogovsek, Mr. Fuqua, Mr. Corcoran, Mr. Michel, Mr. Murphy of Illinois, Mr. O'Brien, Mrs. Collins of Illinois, Mr. Hamilton, Mr. Tauke, Mr. Winn, Mr. Albosta, Mr. Blanchard, Mr. Brodhead, Mr. Broomfield, Mr. Carr, Mr. Conyers, Mr. Davis of Michigan, Mr. Diggs, Mr. Ford of Michigan, Mr. Kildee, Mr. Nedzi, Mr. Pursell, Mr. Sawyer, Mr. Stockman, Mr. Traxler, Mr. Vander Jagt, Mr. Erdahl, Mr. Hagedorn, Mr. Vento, Mr. Frenzel, Mr. Clay, Mr. Coleman, Mr. Taylor, Mr. Young of Missouri, Mr. Cleveland, Mr. Forsythe, Mr. Hanley, Mr. Kemp, Mr. Solomon, Mr. Ashley, Mr. Brown of Ohio, Mr. Devine, Mr. Gradison, Mr. Guyer, Mr. Kindness, Mr. Luken, Ms. Oakar, Mr. Regula, Mr. Williams of Ohio, Mr. Shuster, Mr. Abdnor, Mr. Duncan of Tennessee, Mr. Quillen, Mr. Gramm, Mr. Leland, Mr. Loeffler, Mr. Wilson of Texas, Mr. Whitehurst, and Mr. Pritchard;
Cosponsored on March 26, 1980, by:
Mr. Brooks, Mr. Coelho, Mr. Evans of Indiana, Mr. Gingrich, Mr. Hillis, Mr. Oberstar, and Mr. Charles H. Wilson of California; and
H.R. 5260, introduced by Mr. Murphy of New York on September 12, 1979.
are identical as follows:]

A BILL

To amend title V of the Motor Vehicle Information and Cost Savings Act.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. That the matter preceding paragraph (1) of section 507 of the Motor Vehicle Information and Cost Savings Act is amended to read as follows: "Except as provided in subsection 4, the following conduct is unlawful:".

SEC. 2. Section 507 of such Act is further amended by adding the following: "Notwithstanding the provisions of subsections (1) and (2), the failure of any manufacturer to comply with any average fuel economy standard shall be deemed not to be 'unlawful conduct' unless, following a determination under section 508(a)(2) that the manufacturer violated either subsection (1) or subsection (2), the Secretary also determines that (A) the amount of any credits calculated pursuant to subparagraph (A)(ii) or (B)(ii) of section 508(a)(3), respectively, is not sufficient to fully offset the amount of any penalty assessed pursuant to section 508(b)(3) and (B) the time in which credits could be earned pursuant to subparagraph (A)(i) or (B)(i) of section 508(a)(3), respectively, so as to fully offset the amount of any such penalty, has expired.".

SEC. 3. Section 508(a)(3)(A)(i) (I) and (II) of such Act is amended to read as follows:

"(I) deducted from the amount of any civil penalty which has been or may be assessed against such manufacturer for a violation of section 507(1) occurring in the three consecutive model years immediately prior to the model year in which such manufacturer exceeds such applicable average fuel economy standard, and

"(II) to the extent that such credit is not deducted pursuant to subclause (I), deducted from the amount of any civil penalty assessed against such manufacturer for a violation of section 507(1) occurring in the three consecutive model years immediately following the model year in which such manfacturer exceeds such applicable average fuel economy standard.".

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SEC. 4. Section 508(a)(3)(B)(i) (I) and (II) of such Act is amended to read as follows:

"(I) deducted from the amount of any civil penalty which has been or may be assessed against such manufacturer for a violation of section 507(2) occurring in the three consecutive model years immediately prior to the model year in which such manufacturer exceeds such applicable average fuel economy standard, and

"(II) to the extent that such credit is not deducted pursuant to subclause (I), deducted from the amount of any such civil penalty assessed against such manufacturer for a violation of section 507(2) occurring in the three consecutive model years immediately following the model year in which such manufacturer exceeds such applicable average fuel economy standards.".

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96th CONGRESS
1st Session

H. R. 5944

To amend the provisions of law enacted by part A of title III of the Energy Policy and Conservation Act to provide an alternative means for small manufacturers to meet the fuel economy standards established under such provisions.

IN THE HOUSE OF REPRESENTATIVES

November 20, 1979

Mr. Ashley (for himself, Mr. Reuss, Mr. Brodhead, Mr. Aspin, and Mr. Corcoran) introduced the following bill; which was referred to the Committee on Interstate and Foreign Commerce

---

A BILL

To amend the provisions of law enacted by part A of title III of the Energy Policy and Conservation Act to provide an alternative means for small manufacturers to meet the fuel economy standards established under such provisions.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That (a) subparagraph (A) of section 503(b)(1) of the Act of October 20, 1972 (Public Law 92-513) as amended by part A of title III of the Energy Policy and Conservation Act (15 U.S.C. 2003(b)(1)(A)) is amended by inserting after "manufacturer" the second place it appears the following: ", and, in applying this subparagraph to a small manufacturer in the case of any model year after model year 1979 and before model year 1987, passenger automobiles which are within that small manufacturer's allowable nondomestic volume for that year".

(b) Subparagraph (B) of section 503(b)(1) of such Act (15 U.S.C. 2003(b)(1)(B)) is amended by inserting after "manufacturer" the second place it appears the following: ", and, in applying this subparagraph to a small manufacturer in the case of any model year after model year 1979 and before model year 1987, are not within that small manufacturer's allowable nondomestic volume for that year".

(c) Paragraph (2) of section 503(b) of such Act (15 U.S.C. 2003(b)(2)) is amended by redesignating subparagraphs (D), (E), and (F), as subparagraphs (F), (G), and (H), respectively, and by inserting after subparagraph (C) the following:

"(D) The term 'small manufacturer' means any manufacturer whose total production (whether or not in the United States) of passenger automobiles, by corporate identity, was for calendar year 1978 less than 300,000.

"(E) For any model year, a small manufacturer shall be considered as having an allowable nondomestic volume of the lesser of 150,000 or the total number of passenger automobiles which were not domestically manufactured by such manufacturer during that model year and which were imported by such manufacturer during such model year, but only if such manufacturer submits to the Secretary an application, containing such information as the Secretary may require, and the manufacturer demonstrates and the Secretary finds that—

"(i) the ability of such manufacturer to meet the average fuel economy standard for the model year for which application is made is primarily dependent upon reasonably selected technology (as defined in section 502(d)(3)(A) but for purposes of this subsection, also made applicable to model years subsequent to the 1980 model year), including vehicle design, developed by and obtained from other manufacturers; and

"(ii) a reasonable and economically practicable technology is not within the ability of such manufacturer to develop.".

SEC. 2. (a) Subsection (i) of section 502 of such Act (15 U.S.C. 2002(i)) is amended by striking out "or" the first place it appears and inserting a comma in lieu thereof, and by inserting "or any finding under section 503(b)(2)(E)," before "notify the Secretary".

(b) Subparagraph (H) of section 503(b)(2) of such Act (15 U.S.C. 2003(b)(2)), as redesignated by subsection (c) of the first section of this Act, is amended by striking out "or 1979," and inserting in lieu thereof "or any subsequent model year,".

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96TH CONGRESS
2D SESSION

H. R. 6908

To amend the provisions of law enacted by part A of title III of the Energy Policy and Conservation Act to provide an alternative means for manufacturers to meet the fuel economy standards established under such provisions, to encourage an increase of the domestic value added content in labor and materials of foreign automobiles sold in the United States, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MARCH 25, 1980

Mr. ASHLEY introduced the following bill; which was referred to the Committee on Interstate and Foreign Commerce

---

A BILL

To amend the provisions of law enacted by part A of title III of the Energy Policy and Conservation Act to provide an alternative means for manufacturers to meet the fuel economy standards established under such provisions, to encourage an increase of the domestic value added content in labor and materials of foreign automobiles sold in the United States, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 503(b) of the Act of October 20, 1972 (Public

Law 92-513), as amended by part A of title III of the Energy Policy and Conservation Act (15 U.S.C. 2003(b)) is amended—

(1) in paragraph (1)(A) by inserting "and passenger automobiles which are included within this category pursuant to paragraph (2)(G) of this subsection" after "manufactured by such manufacturer";

(2) in paragraph (1)(B) by inserting "and which are not included in the domestic category pursuant to paragraph (2)(G) of this subsection" after "manufactured by such manufacturer"; and

(3) by adding the following new subparagraph at the end of paragraph (2):

"(G) Commencing with model year 1981, and for each model year thereafter, the Environmental Protection Agency Administrator shall include under paragraph (1)(A) (and exclude under paragraph (1)(B)) for any manufacturer up to 150,000 passenger automobiles which are manufactured by that manufacturer but which do not qualify as domestically manufactured, if—

"(i) at least 50 per centum of the cost to the manufacturer of such automobiles is attributable to value added in the United States or Canada;

"(ii) the model type or types involved have not previously been domestically manufactured;

"(iii) such manufacturer submits a plan, approved by the Secretary, which sets forth a timetable providing that before the close of the third model year commencing after the model year in which the Secretary approved such plan, such automobile model type or types shall be domestically manufactured;

"(iv) such automobile model type or types are manufactured before the close of the third model year commencing after the model year in which the Secretary approved such plan;

"(v) such manufacturer has not previously submitted another plan which has been approved by the Secretary pursuant to this subparagraph; and

"(vi) any such automobile, the assembly of which is completed in Canada, is imported into the United States no later than thirty days following the end of the model year.".

SEC. 2. Subparagraph (F) of section 503(b)(2) of such Act (15 U.S.C. 2003(b)(2)) is amended by inserting after "case may be," the following: "or by a manufacturer to whom subparagraph (G) applies,".

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96TH CONGRESS
2D SESSION

H. R. 6943

To amend the Motor Vehicle Information and Cost Savings Act to benefit consumers by encouraging automotive fuel conservation through extending the carryover and carryback periods for fuel economy credits earned by manufacturers, to encourage increases in the amount of labor and materials added in the United States in connection with the manufacture of automobiles by foreign manufacturers, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MARCH 26, 1980

Mr. SCHEUER introduced the following bill; which was referred to the Committee on Interstate and Foreign Commerce

---

A BILL

To amend the Motor Vehicle Information and Cost Savings Act to benefit consumers by encouraging automotive fuel conservation through extending the carryover and carryback periods for fuel economy credits earned by manufacturers, to encourage increases in the amount of labor and materials added in the United States in connection with the manufacture of automobiles by foreign manufacturers, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE

SECTION 1. This Act may be cited as the "Motor Vehicle Information and Cost Savings Act Amendments of 1980".

FINDINGS AND PURPOSE

SEC. 2. (a) The Congress hereby finds that—

(1) benefits to consumers will result from a modification in the automotive fuel economy system of credits and penalties, contained in the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 1901 et seq.), which would increase from one model year to three model years the carryover and carryback periods for the use of such credits by manufacturers; and

(2) further benefits to consumers will result from amendments to the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 1901 et seq.) which would encourage increases in the amount of labor and materials added in the United States in connection with the manufacture of automobiles by foreign manufacturers.

(b) It is the purpose of the amendments made in this Act—

(1) to encourage increased automotive fuel conservation by extending, from one model year to three model years, the carryover and carryback periods for

the use of fuel economy credits by automobile manufacturers under the automotive fuel economy system;

(2) to encourage the manufacture of automobiles in the United States by foreign manufacturers; and

(3) to encourage increases in the amount of labor and materials added in the United States in connection with the manufacture of automobiles by foreign manufacturers.

AVERAGE FUEL ECONOMY STANDARDS

SEC. 3. (a) Section 502(c) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2002(c)) is amended to read as follows:

"(c) The requirements of this section shall not apply to any manufacturer for any model year during which such manufacturer manufactured (whether or not in the United States) fewer than 10,000 automobiles.".

(b) Section 505(a) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2005(a)) is amended by adding at the end thereof the following new paragraph:

"(4) The requirements of this subsection shall not apply to any manufacturer for any model year during which such manufacturer manufactured (whether or not in the United States) fewer than 10,000 automobiles.".

CALCULATION OF AVERAGE FUEL ECONOMY FOR CERTAIN FOREIGN MANUFACTURERS

SEC. 4. Section 503(b)(1) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2003(b)(1)) is amended by inserting ", other than a manufacturer whose domestically manufactured production commenced after December 22, 1975," after "manufacturer" the first place it appears therein.

CALCULATION OF AVERAGE FUEL ECONOMY FOR CERTAIN DOMESTICALLY MANUFACTURED AUTOMOBILES

SEC. 5. (a) Section 503(b)(1)(A) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2003(b)(1)(A)) is amended by inserting "and passenger automobiles which comply with the requirements set forth in paragraph (3) and paragraph (4)" after "manufacturer" the first place it appears therein.

(b) Section 503(b)(1)(B) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2003(b)(1)(B)) is amended by inserting "and which do not comply with the requirements set forth in paragraph (3) and paragraph (4)" after "manufacturer" the first place it appears therein.

(c) Section 503(b) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2003(b)) is amended by adding at the end thereof the following new paragraphs:

"(3)(A) Commencing with model year 1981, the EPA Administrator shall include not more than 150,000 passenger automobiles manufactured by a manufacturer (other than passenger automobiles which are domestically manufactured by such manufacturer) in the category established by the EPA Administrator for such manufacturer under paragraph (1)(A), if such manufacturer submits an application for such inclusion to the EPA Administrator under this paragraph and if—

"(i) at least 50 percent of the cost to such manufacturer of each such passenger automobile is attributable to value added in the United States or in Canada;

"(ii) none of the passenger automobile models involved has been domestically manufactured in any previous model year;

"(iii) such passenger automobiles are manufactured before the end of the third model year which begins after the model year for which the EPA Administrator approves the manufacturing plan submitted by such manufacturer under paragraph (4);

"(iv) in the case of any passenger automobile the assembly of which is completed in Canada, such passenger automobile is imported into the United States not later than 30 days following the end of the model year involved; and "(v) such manufacturer complies with the requirements of paragraph (4).

"(B) A manufacturer shall not be eligible for the inclusion, in accordance with subparagraph (A), of any passenger automobiles manufactured by such manufacturer in the category established by the EPA Administrator for such manufacturer under paragraph (1)(A) for more than 4 model years. A manufacturer may submit an application under this paragraph for such inclusion only if—

"(i) such manufacturer has not submitted any previous application; or

"(ii) such manufacturer submitted a previous application, but such application was disapproved by the EPA Administrator.

"(4)(A) Any manufacturer who seeks the inclusion, in accordance with paragraph (3)(A), of any passenger automobiles manufactured by such manufacturer in the category established by the EPA Administrator for such manufacturer under paragraph (1)(A), shall submit a manufacturing plan to the EPA Administrator in accordance with this paragraph. Such manufacturing plan shall be submitted at such time, in such form, and in accordance with such procedures, as the EPA Administrator may require.

"(B) Each manufacturing plan shall—

"(i) identify (by make and model) the passenger automobiles which are the subject of such manufacturing plan;

"(ii) provide assurances that, not later than the end of the third model year which begins after the model year for which the EPA Administrator approves the manufacturing plan, such passenger automobiles shall be domestically manufactured;

"(iii) contain a detailed statement of the manner in which the manufacturer involved will carry out the requirement established in clause (ii);

"(iv) provide assurances that such manufacturer will submit periodic reports to the EPA Administrator demonstrating the manner in which such manufacturer is carrying out the requirement established in clause (ii); and

"(v) include such other information, and provide such other assurances, as the EPA Administrator may require.

"(C) The EPA Administrator shall approve each manufacturing plan which meets the requirements of subparagraph (B). The EPA Administrator shall not take any final action disapproving any manufacturing plan except after reasonable notice and opportunity for hearing to the manufacturer involved.

"(D) If the EPA Administrator, after reasonable notice and opportunity for hearing to the manufacturer involved, determines that the manufacturing plan of such manufacturer is not sufficient to ensure compliance with the requirement established in subparagraph (B)(ii), then the EPA Administrator shall notify such manufacturer that, beginning with the first model year which begins after the model year in which such determination is made, the EPA Administrator will cease to include the passenger automobiles which are the subject of such manufacturing plan in the category established by the EPA Administrator for such manufacturer under paragraph (1)(A).

"(5)(A) Any person adversely affected or aggrieved by any action of the EPA Administrator under paragraph (4)(C) or paragraph (4)(D) may, not later than 60 days after notice of such action, file a petition for review of such action with the United States Court of Appeals for the District of Columbia or for the circuit in which such person resides, or in which the principal place of business of such person is located. A copy of such petition shall be transmitted by the clerk of such court to the EPA Administrator. The EPA Administrator, after receiving such copy, shall file in such court the record of the proceedings upon which the action of the EPA Administrator is based, as provided in section 2112 of title 28, United States Code.

"(B) The findings of fact of the EPA Administrator shall be set aside by the court on review unless such findings are supported by substantial evidence. The court, for good cause shown, may remand the case to the EPA Administrator to take further evidence. The EPA Administrator may make new or modified findings of fact and may modify the previous determination. The EPA Administrator shall certify to the court the record of any further proceedings. Such new or modified findings of fact shall be conclusive if supported by substantial evidence.

"(C) The United States court of appeals involved shall have jurisdiction to affirm the action of the EPA Administrator or to set it aside, in whole or in part. The judgment of the court shall be final, subject to review by the Supreme Court of the United States upon certiorari or certification as provided in section 1254 of title 28, United States Code.".

UNLAWFUL CONDUCT

Sec. 6. Section 507 of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2007) is amended by inserting "(a)" after the section designation, by striking out "The" and inserting in lieu thereof "Subject to the provisions of subsection (b), the", and by adding at the end thereof the following new subsection:

"(b) The failure of any manufacturer to comply with any average fuel economy standard applicable to such manufacturer under section 502 shall not be considered to be unlawful conduct if—

"(1) such manufacturer, at the time of such failure to comply, is entitled to credits under section 508(a)(3) in an amount which exceeds the amount of any civil penalty which may be assessed against such manufacturer by the Secretary under such section as a result of such failure to comply; or

"(2)(A) in any case in which a manufacturer indicates (in a report required to be submitted under section 505(a)(1) during the 30-day period beginning on the 180th day of a model year) that such manufacturer will fail to comply with any applicable fuel economy standard, such manufacturer submits a plan to the Secretary (not later than 6 months after the date on which such report is submitted) demonstrating that such manufacturer will be entitled, in subsequent model years, to credits under section 508(a)(3) which—

"(i) would be deducted from the amount of any civil penalty which may be assessed against such manufacturer by the Secretary under such section as a result of such failure to comply; and

"(ii) the amount of such credits would exceed the amount of such civil penalty; and

"(B) such manufacturer realizes such entitlements in such subsequent model years.".

CREDITS AGAINST CIVIL PENALTIES

SEC. 7. (a) Section 508(a)(3)(A)(i) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2008(a)(3)(A)(i)) is amended—

(1) in subclause (I) thereof, by striking out "the model year" the first place it appears therein and inserting in lieu thereof "any of the 3 model years"; and

(2) in subclause (II) thereof, by striking out "the model year" the first place it appears therein and inserting in lieu thereof "any of the 3 model years".

(b) Section 508(a)(3)(B)(i) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2008(a)(3)(B)(i)) is amended—

(1) in subclause (I) thereof, by striking out "the model year" the first place it appears therein and inserting in lieu thereof "any of the 3 model years"; and

(2) in subclause (II) thereof, by striking out "the model year" the first place it appears therein and inserting in lieu thereof "any of the 3 model years".

(c) The first sentence of section 508(c)(2) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2008(c)(2)) is amended by striking out "manufacturer" and inserting in lieu thereof "person".

TECHNICAL AMENDMENT

SEC. 8. Section 503(b)(2)(A)(ii)(I) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2003(b)(2)(A)(ii)(I)) is amended by striking out "base" the last place it appears therein.

○

EXECUTIVE COMMUNICATION NO. 3053

THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

DEC 17 1979

3053

Honorable Thomas P. O'Neill, Jr.
Speaker of the House
of Representatives
Washington, D.C. 20515

Dear Mr. Speaker:

The Department of Transportation is submitting for your consideration and appropriate reference a draft bill

> To amend title V of the Motor Vehicle Information and Cost Savings Act, "Improving Automotive Efficiency", to exempt automobile manufacturers producing fewer than 10,000 vehicles per year from both the fuel economy standards and the semiannual reporting requirements, and for other purposes.

The Automotive Fuel Economy program report for January 15, 1979, as required by title V of the Motor Vehicle Information and Cost Savings Act, includes our legislative recommendations for improving the program. These proposed amendments, which are included in the enclosed bill, are discussed in depth in the enclosed combined section-by-section analysis and justification and in the enclosed 1979 report.

It is the judgment of this Department, based on available information, that neither an adverse impact on the environment nor an inflationary impact on the economy would result from the implementation of this legislation.

The Office of Management and Budget has advised that there is no objection from the standpoint of the Administration's program to the submission of this proposed legislation to the Congress.

Sincerely,

Neil Goldschmidt

Enclosures

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A BILL

To amend title V of the Motor Vehicle Information and Cost Savings Act, "Improving Automotive Efficiency," to exempt automobile manufacturers producing fewer than 10,000 vehicles per year from both the fuel economy standards and the semiannual reporting requirements, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that section 502(c) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2002) is amended to read as follows:

"(c) The requirements of this section and section 505(a) do not apply to a manufacturer in any year in which it manufactured (whether or not in the United States) fewer than 10,000 automobiles.".

SEC. 2. Section 503(b)(1) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2003) is amended by adding the phrase ", other than a manufacturer whose domestically manufactured production commenced after December 22, 1975," following the word "manufacturer" in the first sentence thereof.

SEC. 3. Section 507 of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2007) is amended by inserting "(a)" after the caption and by adding a new subsection as follows:

"(b) Notwithstanding subsection (a), the failure of

any manufacturer to comply with any average fuel economy standard shall not be considered unlawful if:

(1) The manufacturer has already earned sufficient credits under section 508 to offset any penalty under that section, or

(2) Within six months after a manufacturer submits a mid-model year report indicating that it will not meet an applicable fuel economy standard, the manufacturer submits a plan to the Secretary showing that the manufacturer will earn sufficient credits under section 508 in subsequent years to offset any penalty under that section, provided that the manufacturer subsequently earns sufficient credits to offset such penalty.

SEC. 4. Section 508 of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2008) is amended by:

(a) inserting the words "any of the three" before the first occurrence of the word "model" in each of the subparagraphs (a)(3)(A)(i)(I), (a)(3)(A)(i)(II), (a)(3)(B)(i)(I), and (a)(3)(B)(i)(II), and by deleting the word "the" which precedes the first occurrence of the word "model" in each of these subparagraphs and by adding the letter "s" to the word "year" which follows the first occurrence of the word "model" in each of these subparagraphs; and

(b) deleting the word "manufacturer" in the first sentence of subsection (c)(2) and inserting "person" in lieu thereof.

SECTION-BY-SECTION ANALYSIS

Section 1. This section would amend section 502(c) of the Motor Vehicle Information and Cost Savings Act (the Cost Savings Act) to exempt automobile manufacturers producing fewer than 10,000 vehicles per year from both the fuel economy standards and the statute's semiannual reporting requirements. Section 502(c) currently permits the Secretary of Transportation to set a lower fuel economy standard for a particular low-volume manufacturer of passenger automobiles if he finds that the fuel economy standard established is more stringent than the maximum feasible average fuel economy level which such manufacturer can attain. Administration of this provision is burdensome both for the Department and the low-volume manufacturers and contributes little to achievement of the goal of fuel savings. The Department's amendment would exempt both passenger automobile and light truck manufacturers which produce fewer than 10,000 vehicles.

The Department has processed eight applications from eligible manufacturers for lower fuel economy standards since 1975 and has denied none of them. An average of ten applications annually is anticipated in the future. In each case a fuel economy standard determined to be the maximum feasible fuel economy level for that manufacturer is established. In actuality, the resources of these manufacturers (which produce an average of 200-300 vehicles annually, excepting Checker Motors and Rolls-Royce which produce respectively about 5,000 and 3,500 annually) are not sufficiently great to justify substantial commitment of resources to increasing fuel economy. Thus, the manufacturer is essentially only required to meet a level it can already attain, and an insignificant amount of fuel is saved by establishing alternate standards for these manufacturers instead of simply allowing them a complete exclusion from title V. The burdens of filing applications and reports required by title V is also disproportionately large for these manufacturers.

The low volume manufacturer would not, by this amendment, be altogether free from fuel economy considerations. Upon being certified each year by EPA, a fuel economy value for each of its base levels is established. This value becomes the basis for the Gas Mileage Guide, labeling provisions, and the "gas guzzler" excise tax. Therefore, although exemption from CAFE standards and reporting would be granted, a limited amount of pressure to improve fuel economy would remain.

Section 2. This section would amend section 503(b)(1) of the Cost Savings Act to allow a manufacturer to average U.S. assembled automobiles with its imports if U.S. production began after the Act was passed. This amendment would continue the existing statute's discouragement of job exportation by domestic manufacturers and eliminate its current disincentive to U.S. production by foreign manufacturers.

Section 503(b) currently provides that, beginning with Model Year 1980, a corporation's total fleet production of passenger automobiles shall be separated into two separate fleets for purposes of calculation of its average fuel economy -- those which are "domestically manufactured" and those which are "not domestically manufactured." The purpose of this division is not fuel conservation but discouragement of the loss of jobs from the United States that might result from achieving fleet averages among the domestic manufacturers by importing increasing numbers of fuel-efficient vehicles manufactured abroad. (June 12, 1975 Cong. Rec. H 5382 (daily ed.)).

This provision has the potential for decreasing U.S. employment unintentionally. Volkswagen A.G. of Germany produces a range of vehicles from the more fuel-efficient Rabbit model to the less fuel-efficient Dasher, Microbus, Audi, and Porches models. Volkswagen has begun manufacturing the Rabbit models in the United States. At this time, less than 75 percent of the value of these Rabbits are added in the U.S. production stage, but Volkswagen has stated its intention to increase U.S. value added above 75 percent. Volkswagen has advised Congress and the Department that it is discouraged from doing so, because the U.S. Rabbit would then qualify as a separate "domestically manufactured" fleet under § 503(b). While this domestic fleet would have no difficulty achieving presently established average fuel economy standards, the remaining less fuel-efficient production in Europe would constitute a separate fleet that would have more difficulty achieving established or contemplated standards than if Rabbit production could be averaged with it into a single corporate fleet.

Volkswagen could react by limiting its U.S. value added to less than 75 percent or by continuing to import a significant number of Rabbits that could have been built in the United States. Another similar foreign manufacturer contemplating U.S. manufacture might also take these steps, or might abandon plans to begin production in the United States. It is clear that none of these eventualities was intended by § 503(b) and that each would be conterproductive to the section's intended effect of maintaining U.S. jobs in automobile manufacturing. On the other hand, mitigation of this unintended effect would have the appearance of favoring foreign manufacturers. The Department recognizes that the fuel-savings goal of title V was never the basis for the separation of fleets, and its only intended effect was encouragement of U.S. employment.

With this in mind, the Department believes that manufacturers in Volkswagen's position should be permitted to establish manufacturing facilities in the United States without the potential drawbacks represented by § 503(b). Volkswagen has suggested that this could be accomplished by suspending the "two fleets" principle where U.S.-produced vehicles add to the total corporate fleet average in question. While this and other approaches have appealing rationales rooted in the goal of increased fuel savings, the Department prefers to tread § 503(b) consistent with its employment rationale -- that the established U.S. manufacturers should not meet their fuel efficiency responsibilities by importing large numbers of fuel efficient vehicles instead of improving the fuel economy of the domestically-produced fleet.

Section 3. This section would amend section 507 of the Cost Savings Act to exempt a manufacturer from a finding of unlawful conduct for its failure to comply with a fuel economy standard if it has earned sufficient credits in the three years prior to the year of the penalty to completely offset such penalty. The section would also provide relief from a finding of unlawful conduct to a manufacturer that has not earned sufficient credits before the year of penalty, on the condition that the manufacturer submits a plan showing that it will earn sufficient credits during the succeeding three years to offset the penalties. If the manufacturer, despite its plan, has excess penalties at the end of the three-year carryback period, it would be considered to have acted unlawfully. The amendment would thus continue the statute's emphasis on compliance.

Section 4. This section would amend section 508(a)(3)(A)(i)(I) and (II) and (B)(i)(I) and (II) of the Cost Savings Act to modify the automotive fuel economy system of credits and penalties to allow the credits and manufacturer may accrue to be carried forward or backward for three years instead of the current one year. The provisions under section 508 of the statute now impose a penalty of manufacturers who fall below the specified standards, although it does not

prohibit the sale of cars in such a situation. While it is the case under section 508(b) that the Federal Trade Commission is charged with determining whether the imposition of a penalty would result in a substantial lessening of competition and the Secretary of Transportation then has the authority to waive or reduce the penalty, the Department believes that it is further appropriate to allow any credits accrued to be carried forward or backward for three years. This would increase fuel conservation at an earlier date (to avoid paying penalties) and give manufacturers a buffer against the effect of unexpected shifts in the market. It is not intended that a manufacturer would be able to take advantage of credits to deliberately delay fuel economy improvements in later years.

This section would also make a technical amendment to section 508(c)(2) of the Cost Savings Act to substitute the word "person" for the word "manufacturer" in the first sentence of the subsection.

Mr. SHARP. We have Hon. Howard Wolpe with us and we will be happy to hear from him at this time.

STATEMENT OF HON. HOWARD WOLPE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

Mr. WOLPE. Thank you, Mr. Chairman, for the opportunity this morning to make a few remarks relative to a very small provision of the legislation but one that is of substantial importance to me and to a number of my constituents.

I was referring to the small manufacturers' exemption provision of H.R. 5140.

Having carefully reviewed the language that is being proposed it seems to me clear that the proposal that is offered successfully balances the need for improved fuel economy in the automobile industry with the very real problems which confront low-volume automobile manufacturers in conforming to the standards which are more appropriately applicable to the large volume producers.

In fact the Department of Transportation in recent years in recognition of the unique circumstances facing small volume producers has granted several waivers from the Federal standards designed for the large automobile manufacturers.

The proposed statutory exemption would eliminate the need for much of the extraordinarily time consuming and costly paperwork for the Government and the small manufacturer now required annually under existing waiver procedures. In effect, the legislation would simply write into law what is already accomplished through administrative activity at substantially less cost and burden to both the Government and to the small manufacturers.

Unlike the "big three," Checker Motors Corp., which is located in my district, and other small companies specializing primarily in one model car cannot average their fleet or make major modification in design in order to meet Federal fuel economy standards.

As members of the subcommittee are no doubt aware, Checker, in its half century of production, has focused on that small segment of the transportation market reserved for commercial taxicab production.

Checker's automobiles are designed to meet the rigorous demands of extended urban driving with maximum passenger occupancy.

Clearly a Checker may not get 35 miles per gallon, but when the number of passengers who can simultaneously be transported in the Checker sedan is computed the fuel savings are indeed inpressive. Clearly, expanded taxicab utilization can make a major contribution to our national fuel economy goals.

Last year Checker Motors manufacturerd approximately 5,000 automobiles in the approximately 10 million automobile market. The small manufacturers' exemption which will allow those companies which produce less than 10,000 cars a year to be exempt from the fuel economy standards and the semiannual reporting requirements is a commonsense answer to what would otherwise be a very serious problem in terms of both compliance and reporting for the small automobile producers.

The Department of Transportation, who submitted the amendment for consideration, and the administration recognize that failure to enact the exemption provision would only result in troublesome administration of the provision with no appreciable improvement in fuel savings.

Let me quote briefly from the Department of Transportation's own analysis:

> The Department has processed eight applications from eligible manufacturers for lower fuel economy standards since 1975 and has denied none of them. In actuality the resources of these manufacturers are not sufficiently great to justify substantial commitment of resources to increasing fuel economy. An insignificant amount of fuel is saved by establishing alternate standards for these manufacturers instead of simply allowing them a complete exclusion from title V.
>
> The burdens of filing applications and reports required by title V is also disproportionately large for these manufacturers.

The DOT goes on to note:

> The low volume manufacturers would not by this amendment be altogether free from fuel economy considerations. Upon being certified each year by FHA a fuel economy value for each of its base levels is established. This value becomes the basis for the gas mileage guide, labeling provisions and the "gas guzzler" excise tax.
>
> Therefore, although exemption from CAFE standards and reporting would be granted a limited amount of pressure to improve fuel economy would remain.

Unquestionably it will be in the self-interest of Checker and all other low volume car manufacturers to produce even more efficient automobiles. Given the very specialized focus of most limited production auto makers with little flexibility in changeovers, design or intended use the rigid requirements of the fuel economy standards and reporting procedures just do not make sense.

I would again like to thank the subcommittee for extending this time to me today and for your attention to this small but important provision of the legislation that is under consideration.

Mr. SHARP. Thank you very much, Mr. Wolpe. We appreciate your testifying.

As you know in developing the law in 1975 there was an effort to try to recognize that the situation would be different for the small manufacturer and the uncertainty as to what they could or could not do at that time led us to give the Department very broad leeway—the Department as you have indicated has decided it really is not worth the administrative time and the frustration and the cost of these small companies to engage in a program from the Government's point of view.

I think many of us are sympathetic to that notion. We also are eager to see fuel economy improve. I suspect you are right that it is in their self-interest over time to do that or I would think other manufacturers would move in on their market because taxicab drivers and other companies have a strong interest in fuel as one of their increasing costs.

They are bound to be concerned with what the fuel consumption is in their purchase of automobiles for their fleets.

I wondered if you are aware if Checker or any of the others have begun to make improvements in their fuel economy? We will be having DOT testify in a moment.

Mr. WOLPE. I think you will have some testimony presented to you in that regard. I know they are moving to remain competitive in a market in which fuel efficiency is one of the key criteria right now for sales.

Mr. SHARP. Thank you very much. We appreciate your coming.

Hon. Don Bailey, who was unable to be with us this morning, has submitted his statement and, without objection, it will be included in the record at this point as if read.

[The statement referred to follows:]

STATEMENT OF HON. DONALD A. BAILEY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF PENNSYLVANIA

Mr. BAILEY. Thank you, Mr. Chairman, for this opportunity to express my support for section 3 of S. 2475. This provision will provide more jobs for American workers by correcting an oversight in current fuel economy regulations that needlessly discourages foreign automobile manufacturers from increasing their domestic production and purchasing. This amendment seems especially appropriate at a time when Congress is trying to encourage domestic production by foreign automakers.

Volkswagen of America has a production facility in my district now employing 5,400 people, with a weekly payroll of $1.5 to $2 million that goes into the Pennsylvania economy. This production facility contracts with over 1,300 southwestern Pennsylvania companies for goods that help keep the plant functioning. The Westmoreland plant purchases vehicle components from over 700 suppliers located in more than 30 States. In addition, VW is currently considering a second major production facility in Michigan that will virtually double its current production capacity, and use of American labor and supplies.

Section 3 of S. 2475 will allow an automobile manufacturer to average U.S. assembled automobiles with imports for purposes of calculating its corporate average fuel economy, if its U.S. production began after December 22, 1975, the enactment date of title V of the Motor Vehicle Information and Cost Savings Act. The current law discourages foreign auto companies producing cars in the United States from using more than 75 percent U.S. content. For example, Volkswagen of America manufacturers its most fuel-efficient models—the Rabbit and pickup truck—in the United States, while continuing to import certain other vehicles. If the U.S. value-added content of Rabbits exceeded 75 percent, Volkswagen would be unable to meet CAFE standards without severely restricting its imported line. VW's American dealers require a full line of domestic and imported models to be viable in the U.S. marketplace. Therefore, VW's only option would be to limit the American value-added content of its Rabbits and pickup trucks to below 75 percent.

The Department of Transportation has recommended this amendment in their third annual fuel economy report to Congress, stating that the law as it is now written, "* * * may reduce the potential for employment growth in the U.S. automobile manufacturing industry by acting as a disincentive for foreign corporations to produce automobiles in this country."

I therefore urge my fellow colleagues to approve section 3 of S. 2475 in order to allow greater use of American labor and materials by foreign automakers who domestically produce cars and also to encourage other foreign car companies to begin production in the United States.

Mr. SHARP. We are happy to have with us this morning Ms. Joan Claybrook who is the Administrator of the National Highway Traffic Safety Administration.

STATEMENT OF JOAN CLAYBROOK, ADMINISTRATOR, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, DEPARTMENT OF TRANSPORTATION, ACCOMPANIED BY STEVE WOOD, ASSISTANT CHIEF COUNSEL FOR RULEMAKING; MICHAEL FINKELSTEIN, ASSOCIATE ADMINISTRATOR FOR RULEMAKING; BARRY FELRICE, ASSOCIATE ADMINISTRATOR FOR PLANS AND PROGRAMS; AND RHOADS STEPHENSON, ASSOCIATE ADMINISTRATOR FOR RESEARCH AND DEVELOPMENT

Ms. CLAYBROOK. Thank you, Mr. Chairman.

In accordance with the subcommittee's request we have a summary statement to present today and we would like the entire statement placed in the record if we may.

Mr. SHARP. We will be happy to do that. [See p. 39.]

Ms. CLAYBROOK. We are pleased to appear before your subcommittee to discuss H.R. 5140, H.R. 5944, and H.R. 6908 and the administration's proposals relating to the automotive fuel economy program under title V of the Motor Vehicle Information and Cost Savings Act.

With me today are several of the staff from the National Highway Traffic Safety Administration. On my left is Steve Wood who is the Assistant Chief Counsel for Rulemaking. Next to him is Michael Finkelstein who is Associate Administrator for Rulemaking. On my right is Barry Felrice who is the Associate Administrator for Plans and Programs and on his right is Rhoads Stephenson who is the Associate Administrator for Research and Development.

The standards issued under title V make significant contributions to the Nation's total effort to conserve energy. Based on the highest level of standards set to date total fuel savings for passenger cars and light trucks should be more than 500 billion gallons over the next 20 years. This is equivalent to a 20 percent savings compared to the prestandard consumption levels.

In 1979, gasoline consumption declined 5 percent from 1978 levels. Improvements in new car fuel economy accounted for about 25 percent of this saving, thereby reducing our trade deficit in 1979 by about $1 billion. These savings over 1978 through the year 2000 yield a combined discounted present value of approximately $215 billion in 1979 dollars.

Consumer savings from the fuel economy standards are significant. A purchaser of the average 1985 model year car for instance is expected to realize a net savings over the vehicle's lifetime of $1,540, with the present value of fuel savings minus estimated retail price increases when compared to the average 1977 automobile.

To respond to reasonable requests for changes in the statute consistent with the statutory mandate to obtain maximum feasible fuel economy levels for each year, we sought the views of the manufacturers and the public on possible program improvements. In response to these reviews in our 1979 report to Congress we recommended three amendments to the act.

These amendments with an additional fourth amendment are now incorporated in a departmental draft bill transmitted to Congress on December 17, 1979. This bill has yet to be introduced in the House.

Mr. **Sharp**. The bill will be introduced. It was just an administrative error that it has not been introduced. This subcommittee will consider its provisions.

Ms. **Claybrook**. Thank you.

The first of these amendments in the departmental bill would amend section 502(c) of the act to exempt passenger car and light truck manufacturers producing fewer than 10,000 vehicles per year from both the fuel economy standards and the act's semi-annual reporting requirements.

The aggregate production volume of these manufacturers is less than 10,000 annually. An exemption for these manufacturers would therefore have no significant effect on fuel economy. Of the production exempted, 72 percent would be U.S. manufactured.

The low-volume manufacturer would still be subject to the labeling provisions and the gas-guzzler excise tax. I emphasize that because it is our view the gas-guzzler tax should alone carry the burden along with the marketplace of pushing the small volume manufacturers to achieve improved fuel economy.

I believe the tax would range from something like $500 in 1980 up to $3,800 in 1985 for some of the manufacturers who have a very low fuel economy for their vehicles.

These mechanisms would reinforce market forces favoring higher fuel economy and in our view presents a constructive form of deregulation.

The second of these amendments would amend section 503(b)(1) of the act to allow a manufacturer to average U.S. assembled automobiles with its imports if U.S. production began after the act was passed in 1975.

This amendment would help domestic employment by encouraging foreign manufacturers not only to build cars in this country as Volkswagen has recently done, but also to use a high percentage of U.S. made parts and materials.

It is our view that each of these amendments is consistent with the purposes of the act.

The third amendment in our draft bill is substantially identical to one of the amendments proposed in H.R. 5140. It would amend section 508(a)(3)(A) of the act to modify the automotive fuel economy system of credits and penalties to allow credits a manufacturer may earn to be carried forward or backward for 3 years instead of the current 1 year.

This amendment is designed to facilitate compliance by manufacturers in the unlikely event that they may be unable to meet the required levels during a given year due to unforeseen circumstances.

It is not intended either that manufacturers other than those that are financially troubled could use the extended credit period routinely or that any manufacturer could exploit it to deliberately delay fuel economy improvements in later years.

The fourth amendment in our bill addresses the other aspect of H.R. 5140. It would amend section 507 of the act to exempt a manufacturer from a finding of unlawful conduct for its failure to comply with a fuel economy standard if it had earned sufficient credits in the 3 years before the penalty year to completely offset such penalty.

The section would also provide relief from a finding of unlawful conduct to a manufacturer that has not earned fully offsetting credits before the penalty year, but unlike H.R. 5140, our proposal would require the manufacturer to submit a plan demonstrating it will earn sufficient credits during the following 3 years to offset the penalty.

If the manufacturer despite its plan has a net penalty at the end of the 3-year carryback period it would be considered to have acted unlawfully. The amendment would thus continue the statute's emphasis on compliance.

We have mixed feelings about H.R. 5944, which is the bill designed to permit American Motors Corp. to include up to 150,000 nondomestic passenger automobiles in its corporate fuel economy average. We are very concerned about the economic well being of the smaller domestic manufacturers and we do not want the fuel economy program to be inconsistent with the efforts of these companies to prosper in the marketplace.

Our preliminary analysis of the American Motors/Renault joint product plan through 1987 indicates that the legislative proposals for a 3-year carryback/carryforward of credits and elimination of the unlawful conduct where express credits exist adequately take care of American Motors during the transition to full domestic production of Renault vehicles.

Credits earned by American Motors in 1980, 1981, and 1985 to 1987 should more than offset any civil penalties incurred during the 1982 through 1984 period. Absent a clear need for the special provision American Motors is requesting, we are naturally reluctant to support such legislation.

We are also concerned that H.R. 5944 does not require any showing of need for the waiver. Rather, American Motors must only demonstrate that it cannot develop on its own the technology needed to meet fuel economy standards. AMC purchases engines, transmissions and a variety of other components for its passenger automobiles, and the question of whether it can purchase the technology to meet the fuel economy standards is also highly relevant.

On the other hand the adverse energy consequences of adopting H.R. 5944 are minimal and the net effects of the amendment on employment may be favorable in the long run.

H.R. 6908, the bill introduced this week by Representative Ashley, substantially incorporates a provision from the Senate bill that would extend to other manufacturers the advantage offered American Motors by H.R. 5944.

We have similar reservations about that bill particularly in the absence of any indication that other manufacturers have the need for such a provision.

Although the adverse impacts of adopting the proposal appear quite small and speculative, there are questions still to be answered about the effect of the amendment on employment and competition. If such an amendment were to be enacted, it should be given a sunset date of 1985 to encourage American Motors to

proceed expeditiously with its conversion. We favor waiting to determine whether American Motors does in fact have a real problem before enacting their proposal.

This completes my statement, Mr. Chairman. We would be pleased to answer any questions you may have.

[Testimony resumes on p. 51]

[Ms. Claybrook's prepared statement follows:]

STATEMENT OF JOAN CLAYBROOK, ADMINISTRATOR, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, DEPARTMENT OF TRANSPORTATION, BEFORE THE SUBCOMMITTEE ON ENERGY AND POWER, HOUSE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE, CONCERNING PROPOSED AMENDMENTS TO TITLE V OF THE MOTOR VEHICLE INFORMATION AND COST SAVINGS ACT, MARCH 28, 1980

Mr. Chairman and Members of the Subcommittee:

I am pleased to appear before your Subcommittee to discuss H.R. 5140, H.R. 5944 and the Administration's proposals relating to the Automotive Fuel Economy Program under Title V of the Motor Vehicle Information and Cost Savings Act. With me today are Michael Finkelstein, Associate Administrator for Rulemaking, Barry Felrice, Associate Administrator for Plans and Programs, Rhoads Stephenson, Associate Administrator for Research and Development and Steve Wood, Assistant Chief Counsel for Rulemaking.

The Energy Policy and Conservation Act, enacted on December 22, 1975, was designed to increase domestic energy supplies and availability, restrain energy demand, enhance national security, and plan for coping with energy emergencies. As an integral part of its provisions for conservation, Title V, Improving Automotive Efficiency, was established, requiring the Secretary of Transportation to set corporate average fuel economy standards for passenger cars and light trucks.

These standards make significant contributions to the Nation's total effort to conserve energy. Based on the highest level of standards set to date, projected cumulative passenger car fuel savings from model year 1978 through model year 2000 will approximate 395 billion gallons (9.4 billion barrels). Comparable fuel savings for light trucks are estimated to be approximately 114 billion gallons (2.7 billion barrels). Thus, total fuel savings should be more than 500 billion gallons over the next 20 years. This is equivalent to a 20 percent savings -- compared to pre-standard consumption levels -- and will provide the Nation with the equivalent of an additional 4-year supply of gasoline for its passenger car and light truck fleet. In 1979, gasoline consumption declined five percent from 1978 levels. Improvements in new car fuel economy accounted for almost 25 percent of this saving. The improvements in fuel economy alone have reduced our trade deficit in 1979 by about $1 billion and we project another $1-1.5 billion reduction in our trade deficit in 1980.

These savings over the 1978-2000 period yield a combined discounted present value of approximately $215 billion (1979 dollars). In the year 2000 alone, the savings for passenger car owners are estimated to be $12.1 billion and $3.7 billion for light trucks, resulting in a combined present value of $15.8 billion (1979 dollars).

Consumer savings from the fuel economy standards are significant. A purchaser of the average 1985 model year car, for instance, is expected to realize a net savings over the vehicle's lifetime of $1,540 (present value of fuel savings minus estimated retail price increases) when compared to the average model year 1977 automobile. Likewise, a purchaser of the average model year 1981 light truck is expected to realize a net savings of $1,240 over the average 1978 vehicle.

In administering the fuel economy program, we try to be alert to any difficulties that the manufacturers may encounter in meeting the standards. We have been willing to respond to reasonable requests for changes, consistent with the statutory mandate to attain the maximum feasible average fuel economy level for each year.

The National Highway Traffic Safety Administration (NHTSA) conducted an analysis of the need for changes in the fuel economy program for our January 1979 Report to Congress, as required by section 502(a)(2) of the Cost Savings Act. As part of this analysis, we sought the views of the manufacturers and the public on possible program improvements. One of our prime concerns in developing our legislative recommendations was to minimize compliance tasks of the smaller vehicle manufacturers while still securing substantial improvements in automotive fuel economy.

In that Report on Automotive Fuel Economy, we recommended three amendments to the Act. These amendments, together with an additional fourth amendment, are now incorporated into a Departmental draft bill transmitted to the Congress on December 17, 1979. This bill has yet to be introduced in this House, although two of its four amendments are substantially reflected in H.R. 5140 and H.R. 5944. I would therefore begin by urging consideration of the two amendments in our draft bill that have not been incorporated in House bills.

The first of these amendments would amend section 502(c) of the Act to exempt passenger car and light truck manufacturers producing fewer than 10,000 vehicles per year from both the fuel economy standards and the Act's semi-annual reporting requirements. The production volume of these domesti and foreign manufacturers (which together produce a total of less than 10,000 vehicles annually) is so low that there is minimal gasoline that could even theoretically be saved through such regulation. Also, their economic and technical capabilities to make necessary fuel economy improvements are severely limited. An exemption for these manufacturers would therefore have no significant effect on fuel economy and would save both the manufacturers and the government a lot of unnecessary analytical and paperwork. Seventy-two percent of the production that would be exempted from compliance with the fuel economy standards would be U.S. production.

The low volume manufacturer would not, by this amendment, be altogether free from fuel economy considerations. A fuel economy value would still be established each year by EPA for each of the manufacturer's base levels. This value is used for the Gas Mileage Guide, labeling provisions, and the "gas guzzler" excise tax. These informational and taxing mechanisms would reinforce market forces favoring higher fuel economy. Therefore, although exemption from fuel economy standards and reporting would be granted, pressure to improve fuel economy would remain. In our view, this represents a constructive form of deregulation.

A list of the manufacturers that would be exempted by this amendment and the amount of excise tax they would pay this year and in 1986 is appended to this statement. As the list indicates, some of the companies in 1980 would pay as much as $550 per vehicle in excise tax under the existing excise tax requirements, and by 1986 some of them would pay as much as $3800 per vehicle in excise tax.

The second of these amendments would amend section 503(b)(1) of the Act to allow a manufacturer to average U.S. assembled automobiles with its imports if U.S. production began after the Act was passed. This amendment would be consistent with the purpose of section 503(b)(1), in that it would help domestic employment by encouraging foreign manufacturers not only to build cars in this country, as Volkswagen has recently done, but also to use a high percentage of U.S.-made parts and materials. The current law encourages VW to do the opposite, i.e., to continue using less than 75% domestic content of parts and materials in its U.S.-built vehicles. If it exceeds that level, then VW's lower fuel economy imported fleet must separately comply with the standards since its higher U.S. fleet could no longer be averaged with the imported one. It is our view that each of these amendments is consistent with the purposes of the Act and that each is worthy of your consideration.

The third amendment in our draft bill is substantively identical to one of the amendments proposed in H.R. 5140. It would amend section 508(a)(3)(A) of the Act to modify the automotive fuel economy system of credits and penalties to allow the credits a manufacturer may earn to be carried forward or backward for three years instead of the current one year. This amendment is designed to facilitate compliance by manufacturers in the unlikely event that they may be unable to meet the required levels during a given year due to unforeseen circumstances. It is not intended either that manufacturers, other than those that are financially troubled, could use the extended credit period routinely or that any manufacturer could exploit it in order to deliberately delay fuel economy improvements in later years.

The fourth amendment in our bill addresses the other aspect of H.R. 5140. It would amend section 507 of the Act to exempt a manufacturer from a finding of unlawful conduct for its failure to comply with a fuel economy standard if it had earned sufficient credits in the three years before the penalty year to completely offset such penalty. The section would also provide relief from a finding of unlawful conduct to a manufacturer that has not earned fully offsetting credits before the penalty year, if the manufacturer submits a plan, demonstrating that it will earn sufficient credits during the following three years to offset the penalty. If the manufacturer, despite its plan, has a net penalty at the end of the three-year carry-back period, it would be considered to have acted unlawfully. The amendment would thus continue the statute's emphasis on compliance.

The only difference between our fourth amendment and the counterpart provision in H.R. 5140 is that while each of the bills would provide relief from a finding of unlawful conduct to a manufacturer that has not earned sufficient credits before the year of penalty, our bill would condition that relief on the submission by the manufacturer of a plan showing that it will earn sufficient credits during the following three years to offset the penalties. The submission of the plan would not affect a finding of unlawful conduct if the manufacturer, despite its plan, has a net penalty at the end of the three-year period. However, it is our view that the very process of developing such a plan and its review could contribute significantly to assuring its achievement and thus contribute to the success of the program.

We have mixed feelings about H.R. 5944, the bill designe to permit American Motors Corporation to include up to 150,00 non-domestic passenger automobiles in its corporate average fuel economy. We are very concerned about the economic well-being of the smaller domestic manufacturers and we do not want the fuel economy program to be inconsistent with the efforts of those companies to prosper in the marketplace.

AM's recent arrangement with Renault appears to be a creative solution to their mutual problems and should, in the long run, promote the goals of improved fuel economy, higher domestic employment, and increased competition in the domestic auto industry. In preparing our 1979 Report to the Congress on the fuel economy program, we considered a variety of approaches to minimize the potential adverse impacts of the fuel economy program on limited product line manufacturers such as American Motors. Our proposals for a 3-year carry-forward/carryback of credits and the elimination of the "unlawful conduct" characterization where credits exist to offset civil penalties, were designed to provide additional flexibility for manufacturers such as American Motors which have unique problems of a few years' duration.

Our preliminary analysis of the American Motors/Renault joint product plan through 1987 indicates that our legislative proposals adequately take care of AM during the transition to full domestic production of the Renault vehicles. Credits earned by AM in 1980, 1981 and 1985-87 should more than offset any civil penalties incurred during the 1982-84 period. Absent a clear need for the special provision AM is requesting we are naturally reluctant to support such legislation.

We are also concerned that H.R. 5944 does not require any showing of need for the waiver. Rather, AM must only demonstrate that it cannot develop on its own the technology needed to meet fuel economy standards. AM purchases engines, transmissions, and a variety of other components for its passenger automobiles, and the question of whether it can purchase the technology to meet fuel economy standards is also highly relevant.

On the other hand, the adverse energy consequences of adopting H.R. 5944 are minimal, compared to requiring complete reliance on domestic vehicles to meet fuel economy standards. Employment at AM may be reduced in 1982-84 compared to levels which would exist if the company focused its resources on improving the fuel economy of its current vehicles. However, long-run employment will likely be higher at AM under its current plan of producing the high fuel economy, front-wheel drive Renault vehicle. On the basis of available data, we are not able to predict what the net effects of the amendment would be on employment.

Although the adverse impacts of adopting the proposal appear quite small and speculative, there are questions still to be answered about the effect of the amendment on employment and competition. If such an amendment were to be enacted, however, it should be given a sunset date of 1985, to encourage AM to proceed expeditiously with its conversion. We favor waiting to determine whether AM does in fact have a real problem berofre enacting their proposal.

This completes my statement. I would be pleased to answer any questions you might have.

APPENDIX

LOW VOLUME MANUFACTURERS

MANUFACTURER	LOCATION	PROJECTED SALES FOR MY 1980	FUEL ECONOMY 1/ 1978	1979	1980	GAS GUZZLER 4/ 1980	1986
Aston Martin	Buckinghamshire, England	[ ]c	Not Certified	11.5	[ ]c	$550	$3,850
Avanti	South Bend, Indiana	200	16.4	16.4	16.4	0	1,850
Checker	Kalamazoo, Michigan	4596	17.6	16.5 2/	18.6	0	1,050
Excalibur	Milwaukee, Wisconsin	250	11.5	11.5	14.0	200	2,700
Lamborghini	Bologna, Italy	120	Not Certified	11.5	12.0	550	3,850
Maserati	Modena, Italy	500	12.5	12.5	11.5 3/	550	3,850
Rolls Royce	Cheshire, England	[ ]c	10.7	10.7	[ ]c	550	3,850
	TOTAL	7,000		AVERAGE	15.6		

Manufacturers' projections.

EPA estimated fuel economy was reduced due to an increase in the road load horsepower setting.

Maserati has added a new model with lower fuel economy.

Tax calcuation is based on no improvement in fuel economy above projected 1980 levels.

NOTE: Brackets [] denote Confidential Information.

Mr. **Sharp**. Thank you very much, Ms. Claybrook.

As I understand it this morning we have just received the January 1980 report. I wonder if you are in a position to give us a quick rundown as to what the central points are that are made in that report that might be relevant to our hearing today.

Ms. **Claybrook**. How many essential points do you want, Mr. Chairman?

Mr. **Sharp**. I have a number of questions about where we are headed in the future, aside from the specific proposals before us. Perhaps you have addressed some of those in the report.

Ms. **Claybrook**. This report is a report on the past and not the future. It is a report on what has happened in the last year with automotive fuel economy and we tried to estimate what the total savings to the American public are. We estimated something in the nature of 500 billion gallons over the next 20 years would be saved. That is about 12 billion barrels of oil. That is a very hefty saving we believe, and equivalent to a 5-year supply of gasoline for use on the public highways.

We are already experiencing the benefits of the fuel economy program, as I mentioned in my statement, with a gasoline consumption reduction of 5 percent in 1979 from the 1978 levels. And we estimated that about 25 percent of this saving was attributable to the fuel economy standards, thereby reducing our trade deficit approximately $1 billion in 1979 as a result of these standards.

These savings in dollars estimated from 1978 to the year 2000 provide a combined discounted present value of approximately $215 billion in 1979 dollars. In the year 2000 alone the savings for passenger cars and light truck owners combined will be something on the order of $15.8 billion in 1979 dollars.

We did a reevaluation of the current passenger car standards for model years 1981 to 1984 and decided, as we mentioned in the report, that there was no need to revise those standards.

We also mentioned in the report that we think it is clear to the public, Congress and to the Department that energy conservation is not an option, that it is a necessity and these standards have been very helpful to the Nation in achieving conservation.

We also mentioned in the report that we are planning to enlarge the assessment activity the Department has had underway, our research capability for midterm automotive technology in the next few years, trying to better assess what kinds of additional technology should be available for improving fuel economy.

One of the things we are particularly concerned about is diesel engines. As you know, the EPA is responsible for setting particulate standards for diesels. Because of the payoff for fuel economy from the use of diesels, the Department should get involved as should DOE in looking at control technology for particulates so diesels would be more likely to be available for use by the American public.

We also did some calculations on the effect post-1985 standards would have on the achievement of improved fuel economy. The numbers that we used were 50 miles per gallon for automobiles and 37 for light trucks. By 1995 this would achieve a savings of 650,000 barrels per day.

There are still savings to be achieved in the future. The report primarily focuses on the present and the last year.

Mr. **Sharp**. Are you saying you are studying the question about the possibility of standards that would bring it up to 50 miles per gallon by 1990?

Ms. **Claybrook**. No. We are trying to make an assessment of what the Federal role should be in the future, in the post-1985 period. That reassessment or assessment is underway and is expected to be completed by the end of the year.

Mr. **Sharp**. In terms of being able to give us a recommendation or data supporting what the possibilities are, you would expect we would not have that until at least the end of the year?

Ms. **Claybrook**. That is my expectation at this point. There are certain pieces of work that have already been completed and we could certainly supply the subcommittee with answers to any specific questions you might have or attempt to do that.

In terms of an overall departmental position, I think it is unlikely to be decided until the end of the year.

Mr. **Sharp**. It is a relevant question. A few people in the Senate have been talking in terms of some post-1985 standards. I guess I would want to know what kind of studies have been done and what kind of information is available with which we could make any kind of intelligent judgment about what the real possibilities are.

I wonder if there is anything further you might indicate to us as to what is available in terms of industry or academic or Government studies as to these potentials.

Ms. **Claybrook**. There are several things we might submit for the record, Mr. Chairman. About a year ago the Department of Transportation held a conference in Cambridge with invitees from industry and the public attempting to assess what were the potential technology improvements that could be made and what kind of fuel economy could be achieved. A report was prepared of this conference and that is where these numbers of 50 miles per gallon and 37 for trucks we cite in our report to Congress come from.

I know the Department of Energy has done some work trying to assess the relative payoff per dollar invested from various kinds of energy conservation programs, the comparison of the development of synfuels and development of new sources of fuel versus different conservation activities whether in residential conservation or fuel economy for automobiles.

Perhaps we could submit for the record some material at this time.

We also held a conference last October and November. It was an international fuel economy conference. We received a large number of papers from both industry and public members making different kinds of technical assessments on the potentials for the future. We could submit the relevant portions of that for the record.

Those kinds of things would be very helpful to you. The key issue that needs to be addressed, and the reason the Department is undertaking this assessment itself, is the difference between the technological capability of the industry versus the economic capability of the industry—the latter really is the key issue that is under consideration.

[Testimony resumes on p. 142.]

[The following material was received for the record:]

April 6, 1979

Honorable Brock Adams
Secretary of Transportation
Washington, D. C. 20590

Dear Mr. Secretary:

In my letter to you of 16 February, 1979 reporting my preliminary observations on the Conference in Boston on Basic Research Directions for Advanced Automotive Technology, I stated that you will be hearing from me with the final report on the meeting.

The purpose of this letter is to forward that report. The report is a condensation, interpretation and amplification of the principal conclusions and directions which evolved from the Boston meeting. The report commences with an assessment of the opportunities presented to the nation by a program of basic research on automotive technology followed by an outline of a research agenda including the research topics and tasks considered most important for the future evolution of automotive technology. The report concludes with a survey of some of the requirements which are considered important for successful implementation of a program of basic research.

Mr. Secretary, the results of this conference present you and your department with an exceptional opportunity. This opportunity arises from two very significant conclusions:

(1) The consensus of the conference is a clear and unequivocal yes to your question on whether new automotive technology can be applied to achieve a motor vehicle system with less dependence on imported petroleum than that which has been legislatively mandated by the mid 1980's and at the same time satisfy the demanding requirements of safety and emissions that are believed to be applicable during this period.

(2) There was near unanimous agreement that the surest first step toward this end is a well conceived and adequately funded program of basic research. And further, it was agreed that a leadership role is acceptable and expected for the federal government.

The report which is forwarded by this letter has as its companion piece the two volume Proceedings for the Conference on Basic Research Directions for Advanced Automotive Technology. The report is a condensation, interpretation and amplification of the proceedings.

Finally, Mr. Secretary, I would again like to commend you and your staff, especially those at your Transportation Systems Center, for the leadership you are giving the nation in this important area. I am confident that the science and engineering community will respond with effectiveness and enthusiasm to this leadership.

Cordially yours,

Raymond L. Bisplinghoff

Raymond L. Bisplinghoff
Chairman, Conference on Basic
Research Directions for Advanced
Automotive Technology

Enclosures

BASIC RESEARCH DIRECTIONS FOR ADVANCED AUTOMOTIVE TECHNOLOGY

I. INTRODUCTION

On February 13 and 14, 1979, a Conference on Basic Research Directions for Advanced Automotive Technology was held in Boston, Massachusetts. The Conference was attended by more than 700 scientists and engineers from institutions throughout the United States and the world. The purpose of the Conference was to obtain the views and advice of knowledgeable and interested scientists and engineers from various fields and institutions.

The Conference was bounded by three hypotheses which were stated at the beginning: (1) the automobile will remain as the major means of personal transportation and it will be expected to provide similar capabilities in the future as today's motor vehicles; (2) petroleum based fuels will be in increasingly short supply and increasingly expensive; (3) the motor vehicle population will continue to increase with resulting impacts on environmental quality and highway safety.

The three hypotheses implied several characteristics for the post 1985 motor vehicle. First, motor vehicle fuel economy will have to be much better than at present and motor vehicles may require the capability of operating on blends of petroleum, synthetic fuels or non-petroleum derived fuels. Second, increases in the motor vehicle population will require continuing and even increased concern with motor vehicle safety and the control of currently regulated and unregulated exhaust emissions. And finally, preservation of the Nation's current level of national mobility requires that motor vehicle ownership and operating costs remain relatively constant with respect to personal income.

With this set of assumptions in mind, the conferees were asked two questions. First, is it realistic, through the development and application of advanced technology, to achieve a motor vehicle system with less dependence on petroleum than that which has been legislatively mandated by the mid-1980's and which at the same time satisfies the implied characteristics for that future period of safety, emissions and cost? Second, what should be the national automotive basic research agenda to support the evolution of the required advanced technology?

The present report provides answers to these questions in summary form. It is a condensation, interpretation and amplification of the principal conclusions and directions which evolved from the Boston Conference. A more detailed record of the Conference may be found in the two volume Proceedings of the Conference on Basic Research Directions for Advanced Automotive Technology published by the U. S. Department of Transportation and available from the Transportation Systems Center, Cambridge, Mass.

It is emphasized that the theme of the present report, and indeed that of the Conference itself, is basic research. The immediate output of a program of basic research is clearly not intended to be the design of new vehicles, engines or specific automotive components. Rather, the theme focuses on basic research opportunities aimed at achieving a fuller understanding of the physical and chemical processes underlying automotive vehicle technology.

Past experience with basic research in other fields provides the confidence that such fuller understanding should lead inevitably to improved and more efficient automotive vehicles. The output of a National Program of Automotive Basic Research would be, for the most part, new knowledge and concurrently, of equal importance, a new cadre of scientists and engineers with a thorough knowledge of the engineering sciences undergirding automotive technology.

The present report commences with an assessment of the opportunity presented by a program of basic research, followed by an outline for a research agenda. This research agenda naturally represents a first approximation to an ultimate program plan. It is expected that extensive refinement and amplification will take place before a final program plan is evolved. The report concludes with a survey of some of the requirements which should be given consideration in implementing a program of basic research in automotive technology.

II. THE OPPORTUNITY

The first question posed to the participants of the Conference on Basic Research Directions for Advanced Automotive Technology was whether it is realistic, through development and application of advanced technology, to achieve a total motor vehicle system with less dependence on imported petroleum than that which has been legislatively mandated by the mid-1980's and which at the same time satisfies the implied requirements for that future period of safety, emissions and cost. The consensus of the conferees is a clear and unequivocal yes. Some asserted that a marketable 40 to 50 mile per gallon automobile fleet is technically feasible by the turn of the century. Virtually all agreed that the surest first step toward the desired end is a well conceived and adequately funded program of basic research appropriate to automotive technology. And further, there was near unanimous agreement that a leadership role is acceptable and expected for the federal government.

Progress in understanding better the underlying physical and chemical processes is not a panacea for all automobile problems. This fact was recognized by the conferees and often expressed. At the same time it was noted that a fuller understanding of these processes will put the nation in a better position to achieve solutions. Automobile problems, in general, are partly technical but strongly coupled with social, economic and political components. They are problems not peculiar to the United States but they face every nation of the Free World. It was evident from remarks by foreign conferees that they welcome United States leadership in basic research programs and that such programs provide an excellent opportunity for international scientific cooperation. It was their belief that the coordination and sharing of automotive basic research would greatly increase the chances of the countries of the western world in reaching their common goals.

Although the primary attention of the conference was focussed on research topics in the specialties of science and engineering, one persistent need common to all emerged from the panel discussions. This is the need for a capability to analyze as a system the totality of the Nation's automotive enterprise. This common expression of need is reflected in the research agenda in terms of an Automotive Systems and Policy Analyses program. Although such a program is not research in the same sense as the other topics in the research agenda, it is included in the agenda because of its value in assessing research priorities as well as policy making. It would provide the Nation for the first time the opportunity and capability to gather, assess and analyze information on automotive systems. It will aid policy making and planning in at least two ways.

The first relates to national automotive policy making. It will provide policy makers with the tools to examine the economic, technical, social, environmental and institutional trade-offs in the Nation's automotive/energy system. Such knowledge can provide guidance to both government and industry in their attempts to ensure the most socially desirable evolution of the Nation's automotive/energy system.

The second relates to decision making on research priorities and resource investments as well as energy and material conservation strategies and policies. Such decision making can be aided by comprehensive and continuous systems studies of the cost, fuel, safety and environmental aspects of the total automotive transportation system. These studies would also involve consideration of raw material and energy requirements through the life cycles of the different components of the automotive system including the ultimate disposal and recycling of materials.

In contemplating a national program of fundamental research in fields of science and engineering relevant to automotive technology, it should be recognized at the outset that it is a gamble because it deals with the unknown. No one will be able to guarantee that results from any single project will be important to the advancement of automotive technology or to the progress of the automobile. Paradoxically, past experience suggests that such a national program in the aggregate is a sure thing because, in general, it will produce inevitable payoffs in knowledge and tangible benefits. Basic research has repeatedly shown itself to be the best investment in insurance for an unknown future.

III. RESEARCH AGENDA

The Boston Conference, which laid the groundwork for the present research agenda, was organized in terms of three fuctional panels which cover the field of automotive technology. They are engines, fuels and powertrain systems, and vehicle structures and materials. The panel chairpersons were instructed to derive from their deliberations those basic research recommendations which were appropriate to their panel topic. Because of the nature of such an activity there were naturally overlapping recommendations which added additional emphasis to their inclusion in a research agenda.

The criterion for choosing a basic research topic was that of deciding that there was a reasonable probability that the topic could lead to new technical knowledge judged to be lacking and hence impeding progress toward the evolution of new automotive technology. No attempt was made to define a boundary between basic and applied research. Indeed, that boundary is ill defined and the reader may, by his own definition, conclude that many of the research topics straddle it. However, it is emphasized again that the immediate product is intended to be new technical knowledge and not engine, vehicle and component designs or hardware. It is believed that the latter is more logically and efficiently carried out under the direction of private industry.

A careful examination of the papers presented as well as the record of the floor discussions suggests a research agenda outline in terms of topics which are often referred to as the engineering sciences.

TOPICAL OUTLINE FOR A BASIC RESEARCH PROGRAM FOR AUTOMOTIVE TECHNOLOGY

(A) Automotive Systems and Policy Analyses*
(B) Thermodynamics, Combustion and Fluid Flow
(C) Structures
(D) Energy Storage
(E) Engine/Fuel Interactions
(F) Materials Science and Processing
(G) Control Systems
(H) Friction and Wear

The remainder of the present section is devoted to an outline of the research proposed under each topic. This outline begins with an estimate of the opportunities which might be realized as a result of the research followed by a description of the research topic with suggested tasks.

(A) Automotive Systems and Policy Analyses*

As discussed in Section II, this topic was derived from a persistent common thread which emerged from the panel discussions and the closing session of the Boston Conference. It is not research in the same sense as the other topics, but it creates the system analysis capability to provide policy makers, inside and outside the government, with assessments of the technical, economic and institutional trade-offs in the Nation's automotive/energy system, viewed as a national entity. It can provide a systems analysis capability which will have application not only for decision making on research priorities and investments but for broader policy decisions relating to the national automotive system.

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*Although topic A does not involve research in the same sense as the other topics, it is included in the research agenda because of its importance to policy and research planning.

The program is envisioned to be divided into two topics:

- Policy Analysis - The first involves systems analyses aimed at examining broad policy options for the national automotive system. For example, what are the labor, capital and material resource requirements, the environmental impacts and the regional, national and international economic and social impacts of a national effort to assure the Nation's future mobility by producing a fleet of more efficient motor vehicles compared to the implementation of a national synthetic fuel program? The production of an optimum fleet of more efficient motor vehicles may require the extensive use of plastics and aluminum rather than sheet steel and ferrous alloys. The substitution of plastics and aluminum for sheet steel and ferrous alloys will result in the formation of new materials supply systems and major changes in the traditional materials supply infrastructures. The new automotive plastic and aluminum supply industries may be in different geographical locations than the traditional automotive steel and iron industries. The geographic regions which will be most affected by the change to new automotive materials can be identified, and in this manner policy options can be proposed to mitigate the problems of transition. In the case of the utilization of domestic energy resources for the production of automotive fuels, analyses are required on the magnitude of the impacts associated with underground and strip mining, allocation and utilization of limited natural water supplies and rapid urbanization.

- Research Priority and Resource Investment Analyses - The second part of the program applies systems analyses to estimate those research and development objectives which should be given priority to ensure the most socially desirable evolution of the automobile/energy system. Such analyses will be useful in setting priorities for R&D all the way from basic research through development and demonstration. An example of this task would be that of evaluating and comparing automobile materials such as steel, aluminum, composites and others in terms of capital requirements, energy, operating cost, maintainability, producibility, labor, recyclability, safety and environmental impact from raw material through the life cycle of the automobile to the junkyard.

  Another important application would be that of ranking R&D topics in priority order based on an evaluation of their potential impact on the total automotive system as well as energy, raw material, labor, capital and other requirements. For example, it will be desirable to apply this system analysis capability at the level of the research agenda of the present report. Appropriate analyses can be devised to ensure that all research needs are identified, that the tasks are prioritized, that the separate scientific endeavors form a coherent whole, that communication is established between the potential users and the researchers, and that the research plans and results are continually updated and made available to the public. Specific tasks include the analysis of available data, the identification of missing data, the definition of objectives and constraints, and the development of methodologies for performing quantitative systems analyses and trade-offs. Typically, in the topic of Thermodynamics, Combustion and Fluid Flow, analyses and trade-offs could be performed among fuel economy, emissions and fuel requirements for each combustion process. Furthermore, trade-offs should be assessed among the alternative combustion processes on the basis of expected emission constraints and fuel availability. In the area of structures and materials, trade-off studies for new materials, for example, will involve variables such as function, weight, safety, repairability and mass-producibility at reasonable cost.

(B) Thermodynamics, Combustion and Fluid Flow

An intensive research program on thermodynamics, combustion and fluid flow can lead to a vastly improved understanding of the processes which influence fuel combustion, emissions formation, and the efficiency of internal and external combustion engines. For example, although there is almost universal agreement that the diesel engine offers significant fuel economy advantages over the conventional gasoline engine, basic information does not now exist as to whether diesel emissions can be controlled to environmentally acceptable levels. Improved quantitative understanding of the processes of heat, mass, and momentum transfer and their effects on the thermodynamic processes occurring within the engine can provide the basis for significant improvements in both in-use and alternative concept heat engines.

Assessment of the various routes to fuel economy improvement in the internal and external combustion engines indicates a strong need for improved understanding of the thermodynamics, combustion and fluid flow processes and their relationships to the engine system. Research tasks include:

- Chemical Reactions, Kinetics & Thermodynamics - This task emphasizes elucidation of hydrocarbon fuel/air combustion chemistry -- reaction mechanisms, kinetics and emission formation and destruction processes -- and the development and validation of appropriate analytic models. Other topics of major interest include ignition and combustion propagation (and quench), especially for lean areas in stratified charge combustion systems, detonation phenomena and cycle efficiency. Improved understanding of emission formation and destruction processes is a research topic of major importance. A better understanding of these processes will make it possible to effect exhaust emission control within the engine itself by inhibiting the formation and enhancing the decomposition of undesirable combustion products.

- Fluid Mechanics and Heat Transfer - This task will focus on obtaining an understanding of fluid flows within heat engines and the relationship between fluid flows, reaction chemistry and heat release. Theoretical and experimental activities will include fuel injection and spray formation in heterogeneous combustion engines, combustion chamber and combustion zone turbulence, combustion processes, development and validation of analytic models for fluid flow, heat transfer, and the relationship of induction and exhaust system design to combustion chamber and zone turbulence. Fuel injection, spray formation and turbulence are factors which should be given priority in that they determine the physical state of fuel within the combustion zone and thus influence combustion processes, exhaust emission levels and engine efficiency.

- Research Diagnostic Techniques - This task is aimed at developing the necessary instrumentation and analytic techniques for in situ determination of intermediate and final combustion products, fluid flows and spray droplet dynamics. In situ techniques will be applicable to both homogeneous and heterogeneous combustion systems. Effort will be directed towards development of research techniques for measurement of various exhaust products such as polynuclear aromatic hydrocarbons and odorants. Techniques will be developed and evaluated for simulating heat engine combustion on a bench scale. Results from this research task will support other tasks and are essential for the development of kinetic and fluid flow models. Priority should be given to the development of diagnostic techniques for determination of fluid flows and spray droplet dynamics for the short term; and for the long term, techniques for in situ determination of intermediate and final combustion products.

- Engine Design Variables - This task is aimed at empirical determination of the effects of heat engine configuration on efficiency, emissions and engine performance, especially under transient conditions. Design variables of primary interest include fuel preparation and delivery system, combustion chamber, engine controls, air and exhaust flow control, and bore/stroke relationships in piston engines. Additional variables of interest include ignition systems, heat exchanger material and design and seal material and design. Fuel injection systems for diesel and direct injection stratified charge (DISC) engines should be given early attention.

(C) Structures

In the area of automotive vehicle structures basic information is not now available on the quantification of the loads sustained by vehicles and occupants, both during normal operation and collisions. In addition, knowledge is lacking on improved structural design methodologies, including formulation of integrated design approaches, wherein individual components are utilized for both structural and non-structural functions. Improved techniques are also needed that would reduce the many uncertainties which now exist in total vehicle structural behavior. Research is needed to provide insight into the bio-mechanical stresses imposed on vehicle occupants involved in accidents and to establish relationships among the crash environment, the vehicle design and the occupant.

Information that will yield greater vehicle design efficiency bears directly on the ability of the designer to reduce vehicle weight and hence increase fuel economy. It has been demonstrated that the fuel consumption of a motor vehicle is nearly directly proportional to vehicle weight. Reduced weight lowers the power requirements for vehicle acceleration and lowers weight dependent friction.

Research tasks in vehicle structures which are considered essential to the future design of lightweight, safe, and maintainable motor vehicles include:

- Quantification of Input Loads - A systematic study is required of the static, dynamic, and crash impact loads to which a motor vehicle is subjected. Also, future crash environments need to be predicted and characterized and their implications for vehicle structural requirements analyzed. This characterization in terms of vehicle speeds and vehicle fleet weight distribution is of particular importance because it will define the range of impact loads to be sustained.
- Structural Performance Criteria - Structural performance criteria include requirements for both normal vehicle service and the crash environment. Structural performance criteria for normal vehicles can be expressed in terms of structural durability, maintainability and passenger ride comfort; structural performance

criteria for the crash environment can be expressed in terms of the maximum bio-mechanical forces to which a passenger can be subjected, as well as vehicle structure repairability. Research is required on the development of techniques to assess maximum tolerable bio-mechanical stresses and the maximum bio-mechanical stresses to which automobile occupants are subjected in different crash environments. The establishment of the maximum tolerable bio-mechanical stresses occupants of a vehicle can sustain and the development of suitable anthropomorphic dummies for non-frontal crash modes should have a high priority.

- Design and Analytical Tools - The development of computerized design techniques and scale model testing techniques should be accelerated to aid in the development of efficient vehicle design alternatives and the optimum utilization of material properties. A high priority should be assigned to efforts applicable to the newer anisotropic materials and structural members.

- Vehicle Component Integration and Optimization - The accelerated evolution of new structural systems which utilize the maximum number of components for load bearing is required for weight reduction. Also integrated design concepts should be developed which optimize components for multiple functions. The research effort that will allow heretofore nonstructural parts and components to be utilized as structural parts should be given a high priority

(D) Energy Storage

Electrical, mechanical and chemical energy storage provide the long term possibility for direct transfer of the transportation energy base from liquid fuels to electricity derived from coal, nuclear or solar energy. Energy storage research will provide the knowledge base required for assessment of the transition to a non-petroleum based automotive transportation system.

Research aimed at increased knowledge of alternative automotive energy storage systems should include:

- Electrical Storage - Establishment of more complete understanding of component and systems properties of electrical storage systems is required for electric vehicle optimization. This task covers electrochemical studies, mechanisms of loss in electrical systems and losses in the powertrain. Specific components of interest include batteries, motors, chargers and power conditioners. Of highest priority are basic studies of electrochemical couples that show promise for higher energy and power density, longer life, lower life-cycle cost, improved reliability, greater safety and/or better charging characteristics.

- Mechanical Storage - Expanded knowledge of component and systems properties of flywheels and other mechanical energy storage mechanisms such as hydraulic and pneumatic systems may provide the key to mechanical energy storage, especially in hybrid systems. This task includes studies of materials, frictional losses in bearings and powertrain coupling systems as well as studies on reliability and wear. The development of higher energy density flywheels is materials and/or design limited. Fundamental studies on properties of existing and new materials of potential applicability to flywheel design are of special importance.

- Chemical Storage - Studies of improved, more efficient and cost effective techniques for the synthesis and storage of hydrogen and other non-hydrocarbon fuels are necessary. Areas of research include methods of synthesis, storage, and utilization of chemical energy in fuel cells or internal combustion engines. Hydrogen is a potentially attractive fuel for fuel cell and combustion engine applications. Improved, less costly ways of synthesizing and storing hydrogen is a major research priority.

(E) Engine/Fuel Interactions

Knowledge generated through research on engine/fuel interactions is an essential element in the determination of an optimum trade-off between the strategies of improved automotive fleet fuel efficiency and the implementation of an alternative fuels program. Achievement of an optimized vehicle/fuel system is strongly dependent on an understanding of the characteristics and properties of both petroleum and non-petroleum derived fuels and their implications for vehicle/engine performance, including energy conversion efficiency and emissions. For example, a non-leaded, high octane fuel, may permit an engine to operate at high efficiency but may require more processing energy than a lower octane fuel that operates at lower engine efficiency, but requires less processing energy. Similarly, fuels derived from non-petroleum sources may have unique emission characteristics which may in turn have to be controlled either by modifications in fuel preparation and processing or by engine/exhaust emission control system development.

This research topic also includes tasks leading to improved understanding of the chemical and physical properties of fuels from petroleum and non-petroleum sources and their implication for vehicle system performance -- conversion efficiency, exhaust emission characteristics and engine durability. The engine and fuel must be evaluated as a system and implications for refiner/fuel synthesis technology must be addressed. The tasks include:

- Fuel Composition and Properties - A better understanding is required of the relationships between the composition and the chemical, physical, and thermodynamic properties of candidate fuels including blends with petroleum products as they become available. Extensive information is required on the effect of alternative fuel properties on engine performance. Particular emphasis must be placed on understanding combustion phenomena which might influence engine efficiency and emission characteristics and their relationship to fuel chemistry. The pacing item in this research area is the definition and development of detailed correlations between fuel quality and engine performance.

- Alternative Fuel Systems - An extensive data base must be developed on the entire fuel extraction/conversion/synthesis/utilization system to permit comparative analysis among alternative fuel systems in terms of total environmental impact and energy use. Comparative extraction, conversion and utilization data and their implications for optimization of the engine/fuel/vehicle system must be developed. Consistent methodology for comparison of fuels and engine types is required for choosing between various possible fuel/engine systems. It is necessary to acquire systematic information on engine adaptability and the degree of upgrading of synthetic crudes, fuel quality and emissions, and implications of trade-offs between the energy to achieve desirable fuel properties and engine design. Lack of comparable data on alternative fuel systems make their comparison suspect if not impossible. There is urgent need for development of sound, consistent methods of comparison of alternative fuel/engine/vehicle system options.

- Materials and Lubricants - When exposed to alternative fuels, metallic/polymeric material corrosion and lubricant degradation may be significant. Extensive information is required on the chemical reactions of fuel components with the vehicle system. These include all elements of the vehicle's fuel storage, distribution, preparation and combustion systems. Chemical and metallurgical research is required on corrosion chemistry mechanisms, possible role of passivators, and implications for the existing vehicle fleet. Corrosive effects of alternative fuels on the fuel handling system need to be better defined and understood for most efficient incorporation of new fuels into existing systems or for modification of existing systems to accommodate these new fuels.

(F) Materials Science and Processing

The increased use of high strength and/or low density materials in the automobile is one of the major means available for reducing vehicle weight while simultaneously maintaining the functional attributes of the vehicle. As mentioned above, the reduction in weight will cause a reduction in vehicle fuel consumption directly proportional to the weight reduction. Materials science research is required to obtain a better understanding of the relationships between material composition, material processing parameters and the engineering properties of materials in order to develop improved manufacturing methods and enhanced materials utilization. Research is required in both metallic and non-metallic materials science in order to provide a basis for automotive structural and engine designs which will permit the utilization of alternative materials at a reasonable cost.

The purpose of the tasks outlined below is to perform research to accelerate progress in materials which will lead to the utilization of the ultimate engineering properties offered by the materials utilized, reduced costs, and reproducible structures and parts. Research is required on polymeric, metallic and ceramic materials.

- Materials Properties - The establishment of a data base on the new metallic and non-metallic materials, and an improved understanding of the behavior of materials as a function of composition and processing parameters under static and cyclic loads and at high strain rates is needed. The characterization of the mechanical behavior and energy management characteristics of alternate material systems under impulse loads is required.

  A high priority should be assigned to establishing the relationship between material composition, material processing parameters and the engineering properties of the newer, and presently more costly, materials.

- Materials Processes - A better understanding is required on how variations in processing steps (i.e., extraction, processing into engineering materials, forming, joining and machining) impact the physical properties of the materials, the reproducibility of those properties and the production costs. The research priorities vary from material to material. The development of information that will yield high speed, short-cure cycle molding processes for plastics, lower raw materials cost for aluminum and magnesium, high strength multiphase ferrous based alloys, lower cost graphite fibers, and improved joining techniques for several materials are typical of the needs.

- Environmental Effects During Material Processing and Disposal - The introduction of new materials may have numerous environmental effects. Research is required to ascertain that none of the alternative materials have potential adverse environmental impact during all stages of processing, while they are in use, and after final disposal. A continuing assessment of potential impacts for each new material, from the raw materials stage to the junking of non-recyclable parts, i.e. from cradle-to-grave, should have a high priority.

(G) Controls

Controls research in the context of the present outline includes the generation of new knowledge and data on control systems and logic as well as potential sensor and actuator concepts and diagnostic techniques for future vehicles. New and improved automotive control systems offer significant promise for reducing fuel consumption while at the same time meeting increasingly demanding driveability, maintainability, emission and safety constraints. Opportunities exist at the engine level for increased controllability of the engine parameters that control combustion and fluid flow (valve timing and initiation of combustion). These controls can enhance fuel economy. Greater controllability of the transmission should allow improved efficiency due to improved engine/road load matching under given constraints. Research tasks include:

- Control Logic - This task encompasses the definition of logic/control requirements on the basis of the combustion, fluid flow, geometric, dynamic and heat transfer characteristics of engines for improved fuel economy and lower emissions; control requirements for advanced transmissions as a function of engine characteristics for given road loads and emission constraints to improve fuel economy; logic requirements for systems that would enhance safety (i.e., crash avoidance systems, fault systems); and logic that would enhance repairability (diagnostic systems). The research should also yield functional and accuracy requirements for sensors and actuators, and a universally acceptable means of specifying sensors and actuators independent of the transduction mechanisms. The definition of optimal engine control strategies for maximum fuel economy subject to emission constraints, vehicle performance requirements, and transient engine/vehicle system interactions should have a high research priority.

- Improved Understanding of the Physics of Sensors and Actuators - Future motor vehicles will demand the development of low cost sensors and actuators of high reliability to implement the various logic schemes that may be applied to vehicle systems and subsystems. This task will encompass consideration of sensors that measure temperature, pressure, fluid flow and exhaust gas composition; and actuators for engine and drivetrain controls. Research leading to the development of low cost sensors that will measure instantaneous air flow, and the products of combustion of the candidate fuels should be emphasized.

(H) Friction and Wear

The general area of friction/wear research encompasses tire rolling resistance and life, vehicle aerodynamics, and tribology. Improved understanding of tire structures and material combinations may lead to tires with reduced rolling loss and extended life compared to existing tires. There are opportunities for reducing vehicle fuel consumption through a better understanding of vehicle aerodynamics and the development of aerodynamic flow-control devices. Also, improved knowledge of the chemical and physical properties of lubricants and their relationship to engine friction and wear will lead to increased engine efficiencies.

Priorities for research can be determined in part by potential fuel economy gains through further research on tire rolling resistance, aerodynamic drag and tribology. Although the potential fuel economy gains that are likely to result from each of these three research tasks are not as great as the gains expected from either basic engine improvements or weight reduction, they are nevertheless significant. Studies have shown that a 10 percent reduction in aerodynamic drag will yield approximately a 2 percent increase in fuel economy and an equal reduction in tire friction will yield approximately a 1 percent increase in fuel economy. Based on the estimated potential of aerodynamic drag reduction and tire friction reduction, it is likely that additional fuel economy gains, as compared to 1985, of approximately 5 and 3 percent respectively, could be achieved. Also, it is estimated that the potential reduction of mechanical friction in piston engines could yield a fuel economy gain of 5 percent or greater. The research tasks are:

- Tire Rolling Resistance - This task includes research to obtain a better understanding of tire structure and material combinations which may result in tires with reduced rolling friction, improved traction, lower weight, and increased resistance to road hazards.

- Vehicle Aerodynamics - Unlike aircraft designers, automobile engineers have no reservoir of fundamental knowledge comparable to that available from NACA/NASA research and other laboratories. Since the typical automobile is a bluff body operating close to a boundary, the ground, its flow is characterized by separation, reattachment, vortex, shear and wake structures. Thus, aircraft aerodynamic data is of relatively little use to the automotive designer. The vehicle aerodynamic task aims at an improved understanding of vehicle aerodynamic flow fields and configurations with primary emphasis on drag reduction.

- Tribology - Additional knowledge is required which may reduce losses due to friction between sliding surfaces in the engine, transmission and drivetrain, and at the same time enhance wear characteristics. The attributes that influence friction and wear characteristics are the chemical and physical characteristics of the lubricants, the physical properties of the surfaces, and the geometric design of the parts. Thus, improvements in part life and the reduction of friction entails studies in elastohydrodynamics, wear properties of metals and plastics, properties of fluids and boundary lubrication.

IV. IMPLEMENTATION

In the translation of a research agenda into a federal program of basic research, appropriated public funds are a necessary but not a sufficient condition for ultimate success. There must be developed concurrently a national infrastructure of research staff and facilities in those fields of science and engineering appropriate to automotive technology. Experience has shown that the essential components of a successful program of basic research are capable people with good ideas. Such a cadre of people with appropriate institutional environments must be developed. They will not spring full-strength into existence at once and it will be necessary to plan for their evolution and growth.

The most successful national programs of basic research have been based on a policy of seeking out and employing the Nation's best performers wherever they may be found. This implies a willingness and capability of the responsible federal agency to work with all kinds of the Nation's institutions, since the most creative and productive basic researchers are not likely to be confined to a single institution or type of institution. Best performers may be found in universities, industry, government laboratories, research institutes, both profit and non-profit, and others. If the sine qua non for federal support is quality of performance, a full-blown national program of basic research in automotive technology will inevitably involve performers in all these institutions. It is of first importance that a method of program management be devised which permits the diversity of support demanded by a best-performer policy.

In order to reap the benefits of a national program of basic research relevant to automotive technology, support must be sustained over a long period of time, at least a decade, before substantial benefits will be derived. It is, therefore, important to try to find a management arrangement that can hopefully protect the research budget in the face of the financial exigencies that will inevitably occur over such a long period of time. In addition, the support of individual grants or contracts requires reasonable funding longevity. The funds cannot be turned on and off for best long term results. For example, when the universities are funded, graduate student involvement is a necessary ingredient. For this reason, stability in university research requires at least a three year commitment of resources for a single grant or contract. It is reasonable to conclude that support of other institutions should be considered with the same longevity.

Good scientists and engineers desire to communicate with their peers and seek professional recognition through publication of research results in the archival technical journals of their professional societies. Although a federally funded program of basic research can justifiably require progress and final reports to the government agency in fulfillment of grant or contract, it is important that the research performer be given permission to publish as he pleases in the open technical literature. Since basic research results are involved in contrast with proprietary development information, it should be possible to publish in this manner. Such a policy will result in the long run in a stronger technical base for automotive technology in the United States.

Although the research agenda outlined in the present report will not involve a major commitment to new facilities throughout the Nation, some institutional support will be required for research equipment and facilities. It is absolutely essential that research staff be provided with the necessary scientific equipment and adequate facilities in their own institutions if success is desired. The program and budget plan should provide for this kind of institutional support as well as funding for salaries and wages.

Since the ultimate purpose of a program of basic research appropriate to automotive technology is the translation of the acquired knowledge into more efficient and socially acceptable automobiles, it will be important that the program be designed to enhance the translation of knowledge to industry wherever possible. When a promising new idea is identified by basic research, "hot pursuit" of the idea through applied research and, if justified, development and demonstration should be strongly encouraged. There will be many opportunities to translate knowledge from laboratory to user. Some of it will be accomplished in a natural way. The movement into industry of students who have participated in university research in fields relevant to automotive technology is one of the best. Experience has shown that knowledge is translated most effectively by the movement of people. Movement of research scientists and engineers among government, industry, university and research institutes should be encouraged through program plans and government policies. In addition, it would be highly desirable to encourage joint programs of basic research involving the industry, on the one hand, working with the universities and research institutes, on the other. Such programs would be valuable from two viewpoints. The first, already mentioned, is the enhancement of transfer of knowledge to the industry user. The second is a redress of the decline of industrial basic research. There has been a decreasing contribution of the industrial sector to the aggregate levels of basic research expenditures and performance. Since [illegible] to the present time, total contribution by all industry to the national level of basic research expenditures and performance has been on a consistent decline -- from well over one-third to around 15 percent. Additionally, the proportion of industry in-house resources for R&D showed a declining support for basic research. Indeed, the proportion of in-house R&D dollars allocated by all of industry to basic research decreased from

7 percent in 1963 to about half that value at the present time. An NSF funded survey[1] of key industries conducted by the Industrial Research Institute Research Corporation and the Rensselaer Polytechnic Institute showed that in 1974 the automotive industry devoted 0.1% of its in-house R&D funds to basic research in comparison to an industry-wide average of some 3.3%.

The selection of those areas of basic research and the relative funding applied to each should be made by the sponsoring agency after thorough and continuous consultation with the research and user community. A number of patterns have been utilized in the past by Federal agencies for this kind of consultation. The committee structures and peer review systems of the National Science Foundation and the National Institutes of Health as well as the Advisory Committee Structure of the former National Advisory Committee for Aeronautics are suggested as examples. Care must be taken that the initiatives strengthen, rather than substitute for, private incentives for the sponsorship and conduct of research in industry and at the universities.

The sponsoring Federal agency's apparatus for managing the programs should be kept as simple as possible in order to preserve the initiatives of the basic researcher and his creativity. The sponsoring agency should establish the most direct possible communication with the other mission agencies that sponsor related research (e.g., DOE) so that their combined programs can be coherent and permit maximum utilization of results. The proposed program should be complementary to theirs. Patent policy should be given special attention. The patent policy of the government in its present form should be able to resolve satisfactorily to all parties most of the proprietary issues that may arise.

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[1] Support of Basic Research by Industry, report prepared for National Science Foundation by [illegible]

Finally, it is emphasized that the implementation mechanisms selected by the government for institutional involvement and arrangements as well as program management and funding will be of utmost importance in the accomplishment of a successful program of basic research related to automotive technology.

TRANSITION TO THE POST-1985 MOTOR VEHICLE

(By Richard R. John, Research and Special Programs Administration, Department of Transportation)

Before beginning I would like to remark that the views I will present this afternoon, and which are contained in our paper, are my own, and do not necessarily represent the policies of the Department of Transportation or the National Highway Traffic Safety Administration.

I. PURPOSE OF PAPER

The purpose of this paper is to present a preliminary assessment of the potential petroleum savings, technical reasonableness, and material and capital resource requirements associated with the introduction of a highly fuel efficient post-1985 passenger car and light truck fleet.

On the basis of currently projected industry plans and consumer buying patterns, it seems reasonable to assume that the model year 1985 domestic new car fleet will meet the statutory fuel economy standard of 27.5 miles per gallon, and that a representative number for the model year 1985 new light truck and van fleet might be 20 miles per gallon. This number is presented without making any judgement on the current results of the NHTSA light truck fuel economy rule-making action.

Mr. Estes, President of General Motors, and other domestic auto industry leaders have recently remarked that domestic consumers are purchasing new cars and light trucks with gasoline availability and price paramount in their thinking.

Car buyers and not the government are now calling the fuel economy tune. It is not anticipated that the motoring public's concern about petroleum availability and price in the post-1985 time period will be any less than it is now. There will be increased pressure for more fuel-efficient motor vehicles as well as for technology to produce fuels from sources other than petroleum.

In this paper we have made a preliminary assessment of the transition to a highly fuel-efficient, post-1985, motor vehicle fleet without making any judgment that this is either the preferred path or the path that the nation will choose to follow.

Four questions have been addressed (Slide 1):

What are the potential petroleum savings resulting from the introduction of fuel-efficient, post-1985 passenger cars and light trucks?

Is a marketable 40 to 50 mile per gallon passenger car and a 25 to 35 mile per gallon light truck fleet technically reasonable by the mid-1990's?

What are the material and capital resource requirements necessary to produce such a fleet of fuel efficient passenger cars and light trucks?

What research and analysis efforts are either planned or underway, to provide the information necessary to policy makers for weighing the advantages and disadvantages of improved auto fleet fuel economy, as opposed to other alternatives, for assuring national personal mobility with reduced petroleum consumption.

II. WHAT ARE THE PETROLEUM SAVINGS RESULTING FROM THE INTRODUCTION OF INCREASINGLY FUEL EFFICIENT POST-1985 PASSENGER CARS AND LIGHT TRUCKS?

In order to project the petroleum savings associated with the introduction of increasingly fuel efficient post-1985 motor vehicles, two alternative post-1985 fuel economy improvement schedules have been assumed for both the passenger car and the light truck.

In the case of the passenger car, the two fuel economy improvement schedules were (Slide 2):

o Presently mandated fuel economy schedule from 1980 to 27.5 miles per gallon in 1985; linear increase from 1985 to 50 mpg in 1995; and constant thereafter, and

o Present schedule from 1980 to 27.5 miles per gallon in 1985; linear increase from 1985 to 40 miles per gallon in 1995; and constant thereafter.

In the case of the light truck, the two fuel economy improvement schedules were:

o Linear increase from 15.0 miles per gallon in 1980 to [illegible] miles per gallon in 1985, followed by a linear increase to [illegible] miles per gallon in 1995, and constant thereafter, and

o Linear increase from 15.0 miles per gallon in 1980 to [illegible] miles per gallon in 1985, followed by a linear increase to [illegible] miles per gallon in 1995, and constant thereafter.

As indicated previously, the National Highway Traffic Safety Administration is presently in rule-making on the post-1981 light truck fuel economy standards. The 1985 light truck fuel economy value of 20 miles per gallon has been selected as a rounded fuel economy value for the light truck fleet, and is, in no way based on any pre-judgment or consideration of the rule-making process.

The following assumptions were made in projecting the petroleum savings associated with introduction of more fuel efficient vehicles:

o The post-1985 new passenger car fleet fuel economy baseline was a constant 27.5 miles/gallon; the post-1985 new light truck fleet fuel economy baseline was a constant 20 miles per gallon;

o The new passenger car and light truck fleets were projected to grow at a rate of 2%/year until 1990 and at a rate of 1%/year, thereafter. The projected growth rates for the light truck fleet have been reduced from the pre-1973 oil embargo growth rates of more than 5%/year to the same as that for the passenger car fleet to account for growing consumer concern with regard to petroleum availability and price;

o The ratio of new passenger cars to light trucks and vans was held constant at 75% passenger vehicles and 25% light trucks and vans; and

o The vehicle scrappage rates and vehicle miles travelled per year as a function of vehicle age remain the same as at present

Projections of the daily petroleum savings and the cumulative petroleum savings for the 40 and 25 mile per gallon and the 50 and 35 mile per gallon combined passenger car and light truck fleet are shown in the next table (Slide 3).

The combined savings for the 40 and 25 mile per gallon combined passenger car and light truck fleet relative to the 27.5 and 20 mile/gallon baseline fleet grow to 1.8 million barrels/day in the year 2000; and the combined savings for the 50/35 mile per gallon combined passenger car/light truck fleet grow to nearly 3 million barrels/day. These savings represent a decrease in daily petroleum consumption of between 25% and 40% relative to the baseline.

The cumulative petroleum savings by the year 2000 are 4.8 billion barrels for the 40 and 25 mile/gallon accelerated fuel economy schedule and 8.0 billion barrels for the 50 and 35 mile/gallon accelerated schedule.

The daily fuel consumptions, which result from the above mentioned schedules and from a schedule that corresponds to no post 1985 fuel economy changes, are summarized on the next graph (Slide 4). One million barrels/day at the current spot market price of $40/barrel represents a dollar drain of nearly $15 billion/year. The difference between the baseline and the accelerated post-1985 fuel economy schedule is between 30 and $45 billion/year by the end of the century.

III. IS A MARKETABLE 40 TO 50 MILE PER GALLON PASSENGER CAR FLEET AND A 25 TO 35 MILE PER GALLON LIGHT TRUCK FLEET TECHNICALLY REASONABLE BY THE MID-1990's?

Projections of motor vehicle fuel economy as a function of motor vehicle inertia weight for an advanced spark ignition power train and an advanced diesel power train are shown in the next figure (Slide 5). A 1750 lb inertia weight vehicle with diesel has a potential fuel economy between 65 and 75 mpg.

Bench mark data for a 4-cylinder turbocharged diesel in the 2250 lb inertia weight VW Research Vehicle and for a VW 4-cylinder turbocharged spark ignition engine in the 3000 lb inertia weight DOT research safety vehicle are shown for reference.

Projections of the fleet average inertia weight necessary to obtain a 40 to 50 mile per gallon passenger car fleet and a 25 to 35 mile per gallon light truck fleet for the advanced diesel and advanced spark ignition engines are shown in the next table (Slide 6). The target inertia weight required to meet the 40 and 50 mile/gallon fuel economy goals are nearly 1000 lbs less for the advanced spark ignition engine than for the advanced diesel. The vehicle engineer has considerably more flexibility in designing a marketable passenger car or light truck fleet using a diesel power train than using a spark ignition power train. The advantage of bringing diesel exhaust emissions and noise under control are clear.

There are two basic approaches to obtaining a decrease in fleet average inertia weight:

- Fleet weight reduction through materials substitution, and

- Fleet weight reduction through fleet mi[illegible] smaller passenger autos and light trucks; the mix shift may, however, result in the fleet being less marketable.

Projections of vehicle inertia weights utilizing alternate material substitutions are shown in the next table (Slide 7). Four alternate materials substitutions were employed: (1) High strength steel (HSS) dominant; (2) Fiberglass reinforced plastic (FRP) dominant; (3) Aluminum (ALUM) dominant; and (4) Hybrid reinforced plastics - 15 to 20% carbon fiber, 80 to 85% glass (HRP) dominant. In all cases when the dominant material was not applicable, high strength structural steel was used for the structural members and cast aluminum replaced cast iron in the engine block and in other cast iron parts. The high strength steel vehicle has high strength steel hang-on parts; the aluminum dominant vehicle utilizes wrought or sheet aluminum hang-on parts; and finally the fiberglass and hybrid reinforced plastic dominant vehicles have reinforced plastic hang-on parts. The hybrid reinforced plastic structures yield the lowest vehicle weights. In the case of hybrid reinforced plastics, for example, the interia weight for a 6-passenger vehicle is 625 lbs less than it is for the 3375 lb high strength steel vehicle.

Estimates of the passenger car mix distributions required to meet the fleet target inertia weights and thus the fleet fuel economy targets are presented in the next table (Slide 8

It can be observed that:

- The advanced spark ignition engine can meet the 40 mile per gallon fuel economy target for each material combination but with mix constraints which vary with the material emphasized in vehicle construction;
- The advanced diesel can meet the 40 mile per gallon target for each material combination without any constraint on vehicle mix;
- The advanced spark ignition engine can only meet the 50 mile per gallon target with the hybrid reinforced plastic structure and a complete shift to small 2-and 4-passenger vehicles; and finally,
- The advanced diesel can meet the 50 mile/gallon target with some restrictions on vehicle mix.

These results are in agreement with the general concensus obtained among the participants of the recent U.S. Department of Transportation Conference on Basic Research Directions for Advanced Automotive Technology held in Boston, MA in February of this year. A 40 mile per gallon, or even 50 mile per gallon, automobile fleet with passenger capacity similar to the current fleet compatible with national safety and environmental objectives might be achievable by the turn of the century. The basic question is then not one of technical feasibility, but rather whether such a fleet can be produced at a cost that the nation and the motoring public can afford.

IV. WHAT ARE THE MATERIAL RESOURCE REQUIREMENTS NECESSARY TO PRODUCE THE MID-1980'S FUEL ECONOMICAL PASSENGER CAR AN LIGHT TRUCK FLEET?

Estimates of the material requirements for a mid-1980's 20 million vehicle fleet with different dominant materials are shown in the next table (Slide 9). Comparisons of mid-1980's demand are made against 1978 motor vehicle industry materials demand.

o For the mid-80's steel dominant vehicle scenario, the auto industry demand for steel will decrease slightly from about 20 million tons of steel/year to about 19 million tons/year. Twenty million tons/year represents about 20% of the domestic steel capacity. The reduction in the use of low carbon steel will be to a large extent counter-balanced by vehicle sales growth and the increased use of high strength low alloy steels. On the other hand, if reinforced plastics or aluminum become predominant, steel demand might decrease as much as 15 million tons/year from the current base of 20 million tons/year. The projected loss in auto steel production will have a significant industry impact, if other uses cannot be found for the unused rolling mill capacity.

o All of the major components of a motor vehicle in gray cast iron are potential candidates for redesign in cast aluminum. The motor vehicle industry currently consumes about 4 million tons/year of engineered gray cast iron or about 57% of the domestic industry capacity of 7 million tons/year.

By the mid-1990's, it is projected that the demand for engineered gray cast iron will be cut by a factor of 4 from 4 million tons to about 1 million tons/year.

- Nearly 1 million tons of aluminum/year are consumed by the domestic auto industry; this represents about 15% of the domestic aluminum ingot capacity of 6 million tons/year. By the mid-1990's, aluminum use will increase to about 2 million tons/year for the steel and plastic dominant vehicle scenarios and to more than 4 million tons/year for the aluminum dominant vehicle scenario. The projected rate of aluminum consumption by the motor vehicle industry will be two to four times the present rate. Although there will be a changeover from cast iron to cast aluminum, the economic uncertainties associated with the production of aluminum ingots may cause continuing industry resistance to the use of sheet or wrought aluminum for hang-on parts.

- The reinforced plastics industry currently produces a negligible amount of reinforced plastics for application to the domestic motor vehicle. The projected rate of reinforced plastic materials consumption by the mid-90's for the plastic dominant vehicles is close to 4 million tons/year. The increased demand for fuel economical cars has provided the growing reinforced plastics industry with a unique opportunity to displace cold-rolled sheet carbon steel with reinforced plastics in the high unit volume motor vehicle industry.

V. WHAT ARE THE CAPITAL REQUIREMENTS REQUIRED TO PRODUCE A FLEET OF INCREASINGLY FUEL EFFICIENT CARS AND LIGHT TRUCKS?

Gross predictions have been made of the domestic auto industry manufacturing facility changeovers and associated capital expenditures, required from 1985 to 1995, in order to obtain significant post-1985 motor vehicle fuel economy improvements. The implicit assumption has been made that the mid-1990's 50/35 mile per gallon passenger car/light truck fleet will require a powerplant having the fuel conversion efficiency potential of the advanced diesel.

Engine line changes required for the 40/25 mile per gallon spark ignition or 50/35 mile per gallon advanced diesel passenger car/light truck fleets are presented in the next table (Slide 10).

o By 1995, we have projected that the domestic industry will be producing 4-cylinder engines on 32 lines compared to the four lines available in 1978. This will require the installation of 20 new 4-cylinder lines between 1985 and 1995.

o By 1995, we have postulated that as many as six engine lines may have been installed by domestic manufacturers to produce engines having fewer than 4 cylinders. Similar projections have been made of the required changeover in transmission, component, stamping and assembly plants. Gross estimates of the projected cumulative capital requirements for the period from 1978 to 1985 and 1985 to 1995 are presented in the next table (Slide 11).

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As a crude approximation, the total 1985-1995 program cost, including capital expenditures research, engineering, pre-production and launch, for a continued post-1985 increase in motor fuel economy to a mid-1990's level of 40-50 miles per gallon for passenger cars and a 25-35 miles per gallon for light trucks with a resulting saving of 2 to 3 million barrels/day in the year 2000 will probably be close to 100 billion constant 1979 dollars.

VI. WHAT RESEARCH AND ANALYSIS EFFORTS ARE EITHER PLANNED OR UNDERWAY ON THE TRANSITION TO THE POST-1985 MOTOR VEHICLE?

The preceding projections of post-1985 capital and material resource requirements and technology availability are, at best, gross estimates; they are primarily intended to stimulate discussion and, more important, to stimulate the generation of information to reduce the technological and economic uncertainties associated with continued increase in post-1985 new motor fleet fuel economy.

One program has recently been initiated by the West German Federal Ministry of Research and Technology, and another has been announced as part of the President's Transportation Energy Initiative to generate the data necessary to better evaluate the technical and economic feasibility of continued post-1985 motor vehicle fuel economy improvements.

The West German, "Vehicle of the Future Program" is a four-year (1979 to 1982) cooperative program between the West German Ministry of Research and Technology and the West German Auto Industry (Slide 12). The government's contribution to the program is about 75 million dollars; the program is being cost-shared with industry. The program goal is to devise and demonstrate an integral concept of a passenger car of the future which will include consideration of:

- o energy and resource conservation;
- o environmental compatibility;
- o safety; and
- o economy and high utility value.

The recently proposed ten-year, $200 million dollar, Fuel Economy Technology Assessment Program is part of the President's Transportation Energy Initiative. Funding would come from the Energy Security Fund. The purpose of the program would be designed to evaluate improved fuel economy technology that will be available in the 1985-1995 timeframe and would include demonstration of fuel efficient prototype vehicles. The program would include consideration of the economic and market potential of more fuel efficient vehicles.

VII. CONCLUDING REMARKS

New product and manufacturing process technology is not required to demonstrate a 40 to 50 mile per gallon vehicle, but rather is required to make the 40 to 50 mile per gallon vehicle vehicle fleet affordable and able to meet consumers' vehicle utility needs such as roominess, comfort, and driveability and to meet increasingly stringent environmental and safety standards (Slide 13).

As the requirements for improved fuel economy become more severe, either due to market forces, government regulations or a combination of the two, it will become necessary to better utilize existing technology to continually renew our knowledge base and to find ways to generate the capital required for changeover.

TSC

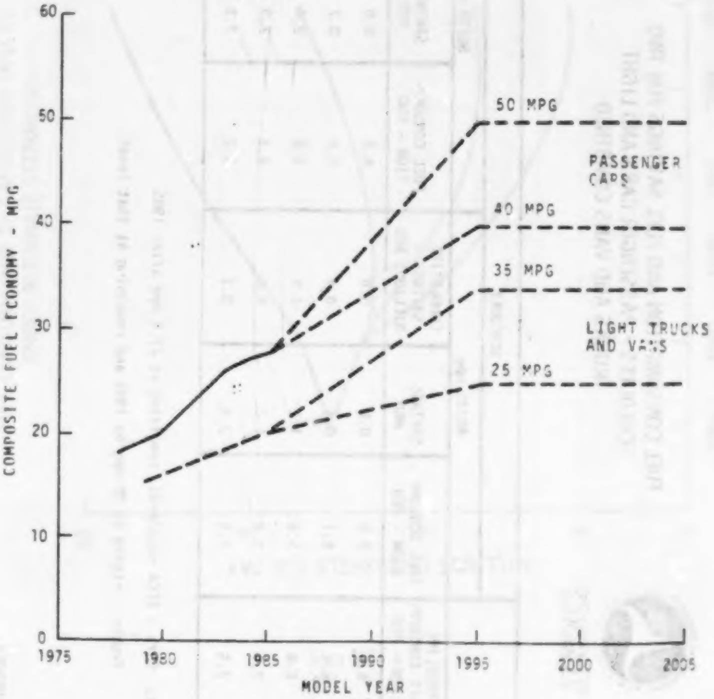
TRANSITION TO THE POST-1985 MOTOR VEHICLE FLEET

- POTENTIAL PETROLEUM SAVINGS
- TECHNICAL FEASIBILITY OF THE 40 TO 50 MILES/GALLON PASSENGER CAR FLEET
- MATERIAL AND CAPITAL RESOURCE REQUIREMENTS
- ON-GOING AND PLANNED RESEARCH AND ANALYSIS EFFORTS

10/29/79

SLIDE 1

ALTERNATE POST-1985 PASSENGER CAR AND LIGHT TRUCK AND VAN FUEL ECONOMY SCHEDULES



SLIDE 2

FUEL CONSUMPTION AND FUEL SAVINGS FOR TWO SCHEDULES - PASSENGER CARS AND LIGHT TRUCKS AND VANS COMBINED

		SCHEDULE					
		40/25 mpg			50/35 mpg		
YEAR	BASELINE FUEL CONSUMPTION - MBD	FUEL CONSUMPTION - MBD	SAVINGS - MBD	CUMULATIVE SAVINGS - BILLIONS BBL	FUEL CONSUMPTION - MBD	SAVINGS - MBD	CUMULATIVE SAVINGS - BILLIONS BBL
1985	6.6	6.6	0.0	0.0	6.6	0.0	0.0
1990	6.5	6.1	0.4	0.4	5.8	0.7	0.7
1995	6.8	5.6	1.2	1.9	4.8	2.0	3.3
2000	7.1	5.4	1.7	4.8	4.3	2.9	8.0
2005	7.5	5.5	2.0	8.3	4.2	3.3	13.7

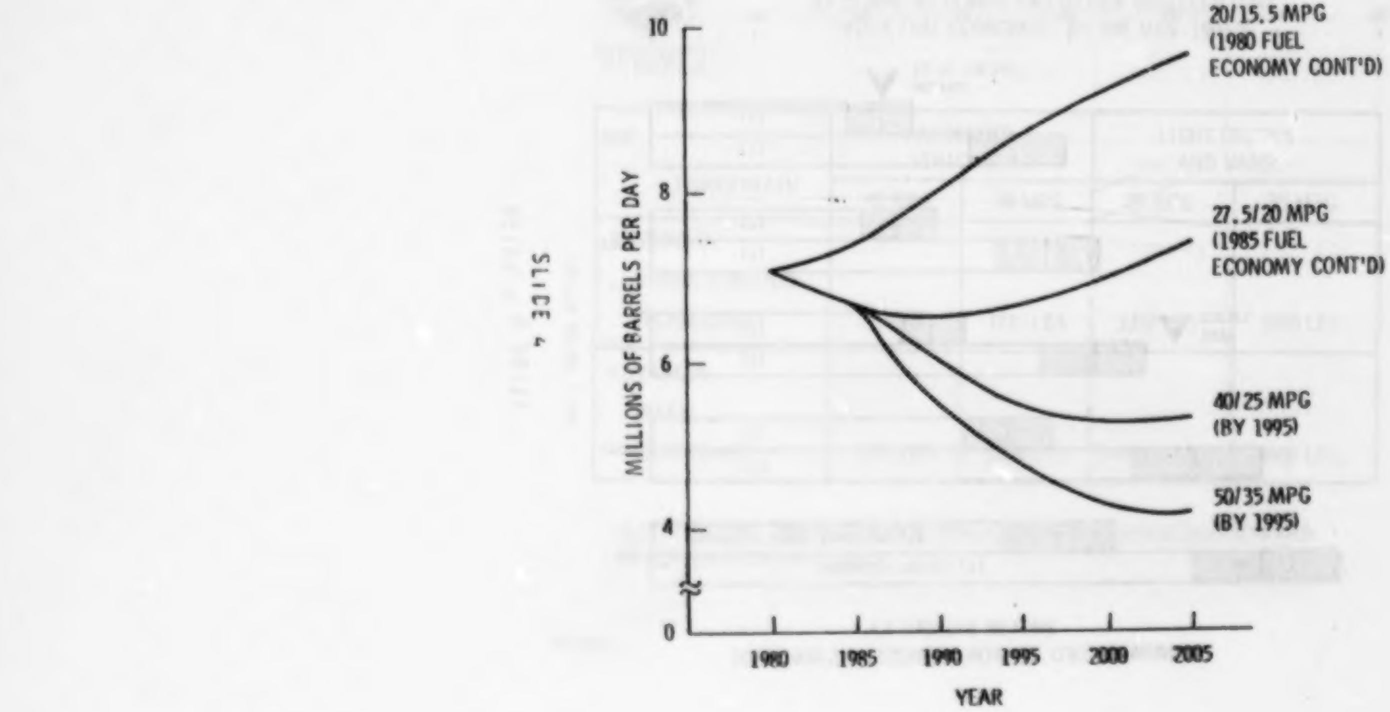
SLIDE 3

Baselines: Cars - EPCA standards, remaining at 27.5 mpg after 1985

Trucks - rising to 20 mpg by 1985 and remaining at that level

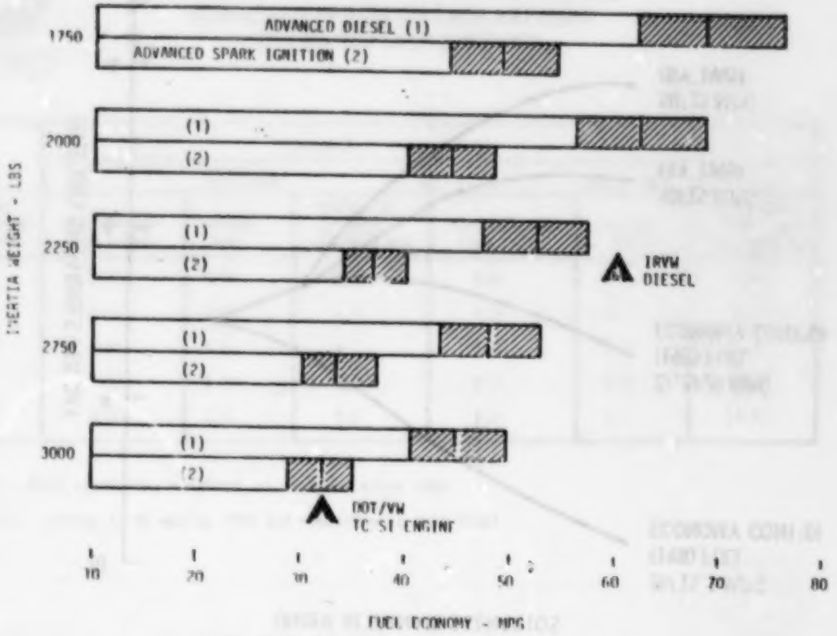
10/29/79

FUEL CONSUMPTION OF CARS/LIGHT TRUCKS
UNDER ALTERNATE SCENARIOS



SLIDE 4

MID-1990'S PASSENGER VEHICLE FUEL ECONOMY VS INERTIA WEIGHT



SLIDE 5

TSC

FLEET TARGET INERTIA WEIGHTS TO OBTAIN 40/25 AND 50/35 MPG PASSENGER VEHICLE/LIGHT TRUCK FUEL ECONOMIES BY THE MID-1990'S

POWERTRAIN	PASSENGER VEHICLES		LIGHT TRUCKS AND VANS	
	40 MPG	50 MPG	25 MPG	35 MPG
ADVANCED SPARK IGNITION TECHNOLOGY*	2250 LBS	1725 LBS	3350 LBS	2000 LBS
ADVANCED DIESEL TECHNOLOGY*	3375 LBS	2625 LBS	>4500 LBS	3650 LBS

*ALSO INCLUDES ROAD LOAD AND POWERTRAIN FRICTION REDUCTION AND ADVANCED TRANSMISSIONS

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SLIDE 6

TSC

ESTIMATED INERTIA WEIGHTS FOR MID-1990'S PASSENGER VEHICLES AND LIGHT TRUCKS AND VANS FOR ALTERNATIVE MATERIAL COMBINATIONS

VEHICLE TYPE	DOMINANT MATERIAL			
	HIGH STRENGTH STEEL	FIBERGLASS REINFORCED PLASTIC	ALUMINUM	HYBRID REINFORCED PLASTIC
PASSENGER VEHICLES				
2-SEATER	2000 LBS	1875 LBS	1875 LBS	1625 LBS
4-SEATER	2125	2125	2000	1750
5-SEATER	2750	2750	2625	2250
6-SEATER	3375	3250	3125	2750
LIGHT TRUCKS AND VANS				
COMPACT	3000 LBS	3000 LBS	2750 LBS	2500 LBS
STANDARD	3875	3750	3625	3250

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SLIDE 7

SLIDE 6

TSC

ESTIMATES OF PASSENGER CAR MIX DISTRIBUTION REQUIRED TO MEET FLEET TARGET INERTIA WEIGHTS

40 MILE/GAL PASSENGER CAR FLEET

POWERTRAIN TECHNOLOGY	TARGET INERTIA WT.	VEHICLE TYPE	DOMINANT MATERIAL			
			HSS	FRP	ALUM	HRP
SPARK IGNITION	2250 LBS	SMALL*	80%	75%	60%	25%
		LARGE**	20%	25%	40%	75%
DIESEL	3375 LBS	SMALL LARGE	NO RESTRICTION			

50 MILE/GAL PASSENGER CAR FLEET

POWERTRAIN TECHNOLOGY	TARGET INERTIA WT.	VEHICLE TYPE	DOMINANT MATERIAL			
			HSS	FRP	ALUM	HRP
SPARK IGNITION	1725 LBS	SMALL	0%	0%	0%	100%
		LARGE	0%	0%	0%	0%
DIESEL	2625 LBS	SMALL	35%	35%	25%	NO RESTRIC.
		LARGE	65%	65%	75%	

*SMALL-4 AND/OR 2 PASSENGERS
**LARGE-6 AND/OR 5 PASSENGERS

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MID-1990'S MOTOR VEHICLE MATERIAL DEMAND FOR DIFFERENT MATERIAL DOMINANT VEHICLE STRUCTURES (MILLION TONS/YEAR)

MATERIAL	1978 AUTO INDUSTRY DEMAND	MID-1990'S AUTO INDUSTRY DEMAND DOMINANT MATERIAL		
		HIGH STRENGTH STEEL	ALUMINUM	HYBRID REINFORCED PLASTICS
STEEL	21	18	12	6.0
• LOW CARBON • HIGH STRENGTH/ LOW ALLOY	20.6 0.4	6.0 12.0	6.0 6.0	5.8 0.2
ENGINEERED IRON CASTINGS	4	1.3	1.3	1.3
ALUMINUM	0.7	2.5	6.3	1.5
• CAST • WROUGHT	0.5 0.2	1.4 1.1	1.4 4.9	1.4 0.1
PLASTICS (REINFORCED)	---	0.2	0.2	6.7

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SLIDE 9

TSC

ESTIMATED U.S. MANUFACTURING FACILITY CHANGEOVER REQUIREMENTS FROM 1978 TO 1995 ASSUMING SIGNIFICANT FUEL ECONOMY IMPROVEMENTS

PRODUCTION FACILITY	PRODUCTION LINES*			PRODUCTION LINE CHANGES	
	1978	1985	1995	1978-1985	1985-1995
<4 CYL	----	----	6	----	6
4 CYL (L-4)	4	12	32	8	20
6 CYL (L-6)	7	6	----	1**	----
6 CYL (V-6)	2	12	9	10	2**
8 CYL (V-8)	26	19	3	3**	2**

*LINE - 400,000 UNITS/YEAR

**RESIZE

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SLIDE 10

TSC

ESTIMATES OF CAPITAL INVESTMENT REQUIREMENTS OF U. S. AUTO MANUFACTURERS' ASSUMING SIGNIFICANT FUEL ECONOMY IMPROVEMENTS BEYOND 1985 ($ MILLIONS)

FACILITY	TIME PERIOD	
	'78-'85	'85-'95
PLATFORM		
Assembly		9,000
Stamping		8,000
Components		17,000
ENGINE		11,000
TRANSMISSION		9,000
MATERIALS PROCESSING (ALUMINUM FOUNDRIES PLASTICS)		9,000
OTHER		4,000
TOTAL	36,000(1)	67,000

(1) U.S. Department of Transportation
National Highway Traffic Safety Administration
Third Annual Report To Congress, January 1979, p. 100
DOT HS-803 777

TSC

PLANNED OR ON-GOING GOVERNMENT RESEARCH AND ANALYSIS EFFORT ON POST-1985 MOTOR VEHICLE

- VEHICLE OF THE FUTURE
  - WEST GERMAN MINISTRY OF SCIENCE AND TECHNOLOGY
  - DURATION: FOUR (4) YEARS
  - FUNDING: $75 MILLION
- FUEL ECONOMY TECHNOLOGY ASSESSMENT
  - PRESIDENT'S TRANSPORTATION ENERGY INITIATIVE (ENERGY SECURITY FUND)
  - DURATION: TEN (10) YEARS
  - FUNDING: $200 MILLION

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SLIDE 12

CONCLUSION

- POTENTIAL EXISTS FOR SIGNIFICANT FUEL SAVINGS IN THE POST-1985 PERIOD
- REQUIRES:
  - CAPITAL
  - RESEARCH

TSC

10/29/79

"Vehicle of the Future Program" - Auto 2000

A. BACKGROUND

The German Federal Ministry for Research and Technology (GFMRT) is embarked on a three-phase, four-year program, entitled "Vehicle of the Future." The program is being cost-shared with industry; the West German Government contribution will be about 50 million dollars, and there will be a comparable contribution from the West German auto industry. The total program expenditures will thus be about $100 million dollars.

The program, which was described at the International Symposium on Traffic and Transportation Technologies, Hamburg, June 1979, has three phases: Phase I, Design Studies (1978-1979); Phase II, Prototype Development (1980-1981); and Phase III, Vehicle Evaluation (1981-1982). Phase I has been completed and Phase II is currently in progress; prototype vehicles are scheduled to be delivered in the summer of 1981.

The aim of the program is to devise an integral concept of the car of the future. The concept car is to show improved safety, energy and material resource conservation, economy, and utility. The purpose of the resulting knowledge is to provide an improved basis for decision-making, and an improved basis for anticipating future change. There are no specific guidelines other than the goal of a 30 percent improvement in safety, e.g., 30 percent reduction in vehicle-related deaths and injuries, 30 percent reduction in fuel consumption, etc.

All the major West German auto manufacturers, i.e., Audi-NSU, BMW, Daimler-Benz, Volkswagen, Porshe and a West German University Team (Darmstadt, Sluttgart, Berlin, and Aachen) participated in Phase I. The Design Phase (Phase I) was completed in 1979 and preliminary results were reported at Hamburg.

The Prototype Phase (Phase II) was started in late 1979 and is scheduled for completion in 1981. The original list of six participants was reduced to four, i.e., Audi-NSU, Daimler-Benz, Volkswagen and the West German University Team. Porsche and BMW did not receive contracts for Phase II. The power plants to be considered in the program will include the gasoline spark ignition and direct and indirect diesel engines, and the gas turbine (Daimler-Benz).

The Volkswagen car of the future will be a four passenger subcompact. Consideration is being given to the use of 3-cylinder, turbo-charged internal combustion; the projected fuel economy is 65 miles per gallon. This vehicle will be an advanced version of the white IRVW. Emphasis will be on improved vehicle aerodynamics, improved power train and material substitution.

The Audi-NSU car of the future will have a vehicle size equivalent to the GM X-Body (5 passenger). The Daimler-Benz vehicle will be a luxury car in the Mercedes F-class; the Daimler-Benz group is considering the gas turbine and turbo-charged diesel as alternative engines. Fondly, the University group is working on the car in the five passenger class. Daimler-Benz is considering the use of air belts, neither air bags nor air belts are being considered for other vehicles.

B. POTENTIAL AREAS FOR NHTSA/GFMRT COOPERATION

The GFMRT Vehicle of the Future Program can provide valuable technical and institutional inputs to the proposed NHTSA Fuel Economy Technology Assessment (FETA) and Integrated Vehicle System (IVS) Programs.

Technically, the Car of the Future Program will utilize what is billed as being "the most comprehensive statistical material in the world on passenger car accidents and the types of collisions."

A comparison of the safety data, and the means being used to analyze this date with our own safety data base and analysis methodology would be highly desirable. The approach used by GFMRT in the specification of vehicle characteristics for the car of the future is quite different than that used by NHTSA in their earlier Experimental Safety Vehicle and Integrated Research Vehicle Programs. For example, rather than specifying specific vehicle performance criteria, e.g., dummy response following a 35 mile per hour frontal crash, the West Germans have choosen to specify the safety goal as a 30% reduction in highway deaths and injuries. The burden is thus on the manufacturer to show that such a goal can be accomplished; and the manufacturer must do this competitively against other manufacturers.

A similar approach is taken in the other areas of environment, energy conservation, etc. A reasonable subject for discussion is whether this approach would be more or less successful than previous specification-oriented approaches, in the U.S. domestic auto industry/government environment.

DAIMLER-BENZ

A. BACKGROUND

Daimler-Benz is West Germany's largest manufacturer of commercial vehicles (200,000 units/year in 1978) and the country's most successful manufacturer of large luxury cars (400,000 units/year in 1978). In 1979 about 50,000 Mercedes autos were imported and sold in the United States; nearly 70 percent of these cars were diesels. Total Daimler-Benz sales last year were about $15 billion and are about evenly split between commercial vehicles and passenger cars; much of its profits came from the high-margin luxury cars.

The present Chairman of the Board of Daimler-Benz is Dr. Gerhard Prinz who took over last month (January, 1980) from its long-time Chairman, Professor Joachim Zahn. During Prof. Zahn's 15 year tenure (1965-1980) the company doubled its passenger car production, and tripled commercial vehicle production.

Daimler-Benz's steady growth during Prof. Zahn's tenure was achieved through a decision to embark on a major investment program to increase productive capacity for passenger cars and commercial vehicles. By concentrating on high quality and expensive passenger cars and trucks Prof. Zahn managed to maintain a relatively noncyclical course for the company in an industry which normally undergoes business peaks and valleys.

In the passenger car sector the company will continue to benefit from a reputation for sound engineering and quality. The car will remain in good demand in the affluent markets of the world notably Western Europe, North America, and the Middle East. There is presently a two-year backlog for Mercedes passenger cars. Even though the United States is the second largest market for Mercedes cars, the management has ruled out the possibility of car assembly or production facilities in the United States; the 50,000+ Mercedes cars sold in the United States is considered to be too low, by Mercedes management, to justify a plant in the U. S.

The company's sales director recently stated that in 1980 Daimler-Benz will sell 55,000 cars in the United States -- the number of cars which will be sold is supply rather than demand limited. Demand seems to be insensitive to price.

A smaller, fuel economical Mercedes is presently in development and likely to be introduced in 1985. One of the main focuses of the company's development has been its diesel engine. The diesel engine market is also going to be its main support for its push into the United States heavy duty truck market.

On the commercial vehicle front competition from new groupings or reshaped companies will tend to undermine Daimler-Benz's current strong position. Major competitive threats in this area include the Truck and Bus Division of British Leyland, the Saviem-Berliet Division of Renault, and FIAT's recently formed IVECO group.

B. CURRENT STATUS OF TECHNOLOGY

Daimler-Benz has a reputation for engineering excellence in all aspects of car and engine design. The company has a long history in the technology of diesel engines. Mercedes has expressed concern over EPA's proposed NO_x and particulate requirements for diesels. They have suggested that special emission standards be made for diesel cars as they have in Germany, Sweden, and Australia.

C. HISTORY OF CO-OPERATION WITH NHTSA

Daimler-Benz was a participant in the international experimental safety vehicle program and has in the past expressed interest in co-operation with DOT in a passive restraint demonstration project.

D. PARTICIPATION IN WEST GERMANY "VEHICLE OF THE FUTURE" (AUTO 2000) PROGRAM

Within the context of the "Vehicle of the Future" project (also called "Research Vehicle" project) sponsored by the Federal Ministry for Research and Development, Daimler-Benz is developing a 4 to 5 passenger car suitable for longer journeys. The gas turbine and advanced gasoline and diesel engines are being considered as alternative powerplants.

For the purpose of alleviating the consequences of accident a passive air bag restraint system for driver and front seat passenger is to be tested as supplementary to a further developed and comfortable active belt system using a belt tightener. Efforts will be made to reduce the consequences of road accident involving pedestrians through the use of a new hood contour, rounded edges and a pedestrian restraint system to prevent a secondary impact. Finally, an asymmetrical front end structure will be tested to see if it can reduce injuries suffered by vehicle occupants in offset head-on collisions.

Within the context of the research vehicle project sponsored by the West German government Daimler-Benz is putting forth a touring car. Phase I design studies for this project were completed in the Fall of 1979, the Phase II prototype vehicle development will be completed in November, 1981. The program is cost-shared with the West German government; the estimated West German government contribution over the 1980-81 time period is estimated to be $10M. Daimler-Benz will provide a comparable financial contribution to the project.

E. SUBJECTS FOR NHTSA/DAIMLER-BENZ DISCUSSION

(1) Increased NHTSA/Daimler-Benz co-operation in the evaluation and demonstration of current and advanced passive restraint systems.

(2) NHTSA interest in sharing data on comparative evaluations of gas turbine, spark ignition, and diesel engines.

(3) NHTSA interest in obtaining co-operation and participation by Daimler-Benz in the assessment of bench mark vehicles which will provide essential data for the assessment of alternative motor vehicle systems for the 1985-2000 time period. Explore feasibility of using results from the Daimler-Benz Auto 2000 Programs to complement efforts being undertaken in the NHTSA Fuel Economy Technology Assessment (FETA) Program.

BAVARIAN MOTOR WORKS (BMW)

A. BACKGROUND

BMW is the smallest of the major West German passenger car producers. The company concentrates on the high-quality, high performance portion of the market; on cars with a sporting flavor. Customers in this market segment are less price sensitive than in the volume segments, and their needs leave more room for product differentiation as with Daimler-Benz, West Germany's other upmarket car producer.

Eberhard von Kuhnheim, BMW Chief Executive Officer, was elected by journalists as "the most successful manager of 1978."

BMW has been enjoying good market conditions with capacity being its main limitation to further progress. The company has been emphasizing the safety and fuel economy aspects of its product range while nullifying the performance aspect. BMW currently sells about 30,000 car/year in the North American market out of a total production of about 300,000 cars.

BMW anticipated selling an estimated 35,000 cars in the United States in 1979 and indicated a desire to boost this total to 37,500 in 1980. In an effort to support its 355 dealers nationwide, BMW has expanded from two to four marketing regions. The company would like to expand its dealer network to 400 now that sales per dealer are approaching 100 units.

BMW has raised its prices in the United States an average of 9%, largely due to the continuing rise in the value of the deutsche mark against the dollar.

BMW is unlikely to try to break out of its current sector onto a downmarket sector. Therefore, for the near term it can be expected to fall into the category of less than 50,000 units/year sold to the North American market.

B. CURRENT STATUS OF TECHNOLOGY

Largely due to a 30% fuel economy improvement in its 320i line, BMW's corporate average fuel economy for 1980 stands at 26.0 mpg, compared to an estimated 20.1 mpg for 1979. The company has installed three-way exhaust catalysts with Lambda feedback control, allowing the removal of air pumps and EGR equipment that lead to fuel economy penalties. The 320i line posted the greatest fuel economy gain because use of the catalyst permitted a switch to a smaller displacement engine. The 320i also has a 5-speed overdrive transmission to improve fuel economy.

BMW has announced that it will have ready for introduction in 1981 a 6-cylinder, 2,400 cc, 185 hp engine that can be switched over to three cylinders producing 83 hp when this is warranted by traffic conditions. The new engine will have a 30% better fuel economy than a conventional 6-cylinder engine.

BMW will have a new assembly plant completed by mid-1982 with an annual capacity of 50,000 more fuel-efficient ETA gasoline and 100,000 turbocharged diesel engines.

C. HISTORY OF COOPERATION WITH NHTSA

Compliance with safety and fuel economy standards.

D. PARTICIPATION IN WEST GERMANY "VEHICLE OF THE FUTURE" PROGRAM

Reference Section II--Status as of 3-26-80.

BMW was an active participant in Phase I, but did not receive a Phase II contract award.

E. TOPICS FOR NHTSA/BMW DISCUSSION

(1) BMW plans for a 12-cylinder engine were cancelled. The decision was sharpened by U. S. fuel economy; safety; and emission standards. It was speculated that BMW wanted the engine so as to compete with the upper class Mercedes (although officially BMW denies the claim.)

(2) BMW work on anti-locking braking system may be of interest to NHTSA.

AUDI NSU AUTO UNION AG

A. BACKGROUND

Audi NSU Auto Union AG (Audi) is a subsidiary of Volkswagenwerk AG whose primary business is the production of upper market sedans. The present Audi group is an amalgamation of Auto Union, acquired from Daimler-Benz in 1965, and NSU, bought in 1969.

The firm's sales in 1978 were 4.5 billion DM based on production and sales of vehicles including 22,000 Porsches Audi made for Porsche. Production of Audi's own cars were overwhelmingly of two models, the Audi 80, which accounted for 30.3% of the 317,000 units, and the Audi 100 which accounted for 62.6% of that figure. the 1979 production of Audi autos rose from 295,000 to 333,000.

Audi's function in the VW group is to build upper market cars which compete to a great degree with Mercedes-Benz and BMW offerings in performance, styling, comfort, and quality. In actuality the Audi's are perceived and priced below all Mercedes and the upper end of the BMW line, but they compare well with the base of the BMW line and are in general well received in their major markets.

The U. S. is a major market for the Audi; in 1978 Audi sold 41,000 autos here, in 1979 it sold 43,000; including 2300 Audi 100 (Audi 5000 in the U.S.) Diesels. Demand for Audi 5000's and Audi 4000's (the Audi 80 in West Germany) in the U.S. appears to be slightly greater than supply.

B. CURRENT STATUS OF TECHNOLOGY

The Audi group has a long history of innovation NSU was the firm which first commercialized the Wankel rotary engine, which it sold in the NSRO-80 passenger car from 1967 to 1977. Over 37,000 cars were sold, and Audi developed a significant business licensing other firms to produce the rotary engine. However, in early 1979 Audi shelved its program of developing a high performance 2-rotor Wankel engine, citing the difficulty of the Wankel's soon "living up to (the) potential" of reciprocating engine.

More successfully, Audi developed a 5-cylinder gasoline engine which it introduced in 1976, a 5-cylinder diesel variant which it introduced in 1978, and a turbocharged gasoline engine which it introduced in 1979. All of these developments were introduced in the Audi 100. A turbocharged version of the diesel is rumored to be under development. However, Audi's current diesel engine has not received the waiver the firm requested from the EPA's 1981 NO_x emissions standard.

C. HISTORY OF CO-OPERATION WITH NHTSA

Compliance with Safety and fuel economy standards.

D. PARTICIPATION IN WEST GERMAN "VEHICLE OF THE FUTURE" (AUTO 2000) PROGRAM

Audi participates in the Phase I (Design Phase) of the "Vehicle of the Future" Program, and also is a participant in the Phase II (Prototype Development) effort. The Audi-NSU "car of the future" will have a vehicle size equivalent to General Motor's X-Body (5-passenger).

E. SUBJECT FOR NHTSA/AUDI DISCUSSION

Potential for data base information on 5-cylinder gasoline and diesel engines, including turbocharging and 5-passenger vehicles.

VOLKSWAGEN

A. BACKGROUND

Volkswagen is West Germany's second largest corporation with sales of 16.6 billion dollars. It is also West Germany's largest motor vehicle producer (worldwide production of 2,384,000 units in 1978); Of these, 2,146,000 were passenger cars and 238,000 commercial vehicles. The increase in production capacity since 1977 has been achieved mainly through expansion abroad.

Total VW sales in the Unites States last year were 292,000 units, which includes 167,000 cars produced at the Westmoreland facility. The Volkswagen Group also sold 86,000 diesel autos in the U.S. market in 1979; these were divided between the rabbit (88%), and Dasher (12%)

The present Chairman of the Board of Volkswagen is Mr. Toni Schmüker, who took over in 1975 from Rudolf Leiding. Leiding had developed a rational long-term model program which concentrated on a few basic models with a high degree of interchangeable parts. He devoted his effort to building a small number of water-cooled, front-wheel drive, front-engined cars to be introduced in 1973/74. This resulted in Leiding's five new models-- Polo, Golf (Rabbit in U.S.), Dasher, Scirocco, and Audi 50.

Mr. Schmuker's long experience with Ford Germany (last position member of the Managing Board in charge of sales), and subsequent success as president of the steel products and machinery firm, Rheinstahl AG, and diplomatic skills led to his selection as Chairman. Mr. Schmüker has established the Management Board as a strong team, Anticipating opposition from state government interests and labor, he planned a diplomatically balanced cut-back to be spread over all production facilities; this plan was accepted by the Supervisory Board.

Volkswagen's improvements in operations during Mr. Schmüker's tenure is credited in part to the product line transformation carried out under Leiding. The success of the new product line - in particular the "Rabbit" - together with a new up-turn in the car industry helped VW to get in the "black" again as early as August 1975. Mr. Schmüker has moved to strengthen the company's position as a full product line producer. The recent Volkswagen/MAN agreement to produce a new range of medium trucks, will allow the new group to offer a complete product line in competition with Daimler-Benz. Current prospects in North America look so good to the company that it plans to put nearly a quarter of a newly announced $3.1 billion investment budget in this market.

In view of the cyclical nature of the automobile demand, VW has adopted a policy of refraining from exploiting all market possibilities in order to maintain stability of employment. It is also actively engaged in the acquisition of counter-cyclical companies.

In the passenger car sector the company will continue to benefit from its image for sound engineering; its cars are perceived as comfortable, reliable, sophisticated and expensive. They have bolstered this image with a lot of attention to servicing, including simplified systems for replacing faulty parts. To complete effectively against the Japanese, VW must maintain its engineering edge. As suggested by Schmüker, superior engineering is the secret of VW's success.

Volkswagen's research budget, supports an in-house staff of 600. Its expensive facilities include wind tunnels, and computer-aided design equipment. The company has examined a variety of engine types and fuels, both for the near term and for the 1990s. A fuel economical turbo-charged Rabbit is presently in the pre-production stage and is likely to be introduced within the next few years.

B. CURRENT STATUS OF TECHNOLOGY

Volkswagen has a reputation for engineering excellence. The company's recent emergence as technological innovator has been responsible for its commercial success. VW is investing heavily in technology, to retain its engineering edge.

C. HISTORY OF CO-OPERATION WITH NHTSA

Volkswagen was a participant in the Research Safety Vehicle Program, and has provided NHTSA with a data base on diesel engines under the auspices of another contract.

Additionally, under two additional contracts, data bases on naturally aspirated and turbo-charged spark ignition engines have been assessed by VW for TSC under DOT/NHTSA sponsorship.

The highest fuel economies demonstrated to date have resulted from the above contracts (e.g. 60 mpg turbo-charged diesel in 2250 pounds IWT and 32 mpg VW turbo-charged powerplant in Calspan 3000 pount IWT Research Safety Vehicle).

D. PARTICIPATION IN WEST GERMANY'S VEHICLE OF THE FUTURE (AUTO 2000) PROGRAM

Within the context of the "Vehicle of the Future" project, Volkswagen is developing a two-door four seater sedan built on the VW Golf wheel base, with closely similar overall dimensions. It has a low-drag, light-weight body. A number of different power trains are being considered. Leading candidate powerplants include: 1) a gasoline engine (4-cylinder, 1100 cc with high compression and electronic knock-control detector, electronic fuel injection, electronic ignition and a small-diameter turbo-charger; and 2) a three cylinder diesel engine, with direct fuel injection, and supercharging.

E. SUBJECTS FOR NHTSA/VOLKSWAGEN DISCUSSION

Potential of VW for future work in support of FETA and other DOT/NHTSA.

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WEST GERMAN UNIVERSITY TEAM

A university study research group comprised of four institutes of technical universities are developing a pedestrian-oriented; low-noise and economical car as part of Phase II of the Research Vehicle Project. The University Group (Hochschularbeitsgemeinschaft-HAF) is made up of Darmstadt, Stuttgart, Berlin, and Aachen.

As part of a research project promoted by the Bundesminister für Forschung und Technologie, the group has worked out a concept of a passenger car for the future. The focus of the development of this vehicle was on designing a vehicle that considered not only the passenger and the goals of the future car, but also considered the safety of pedestrians and cyclists as well. To this end, the group is utilizing all data, new technology, research methods, and materials application.

PORSCHE

A. BACKGROUND

Porsche is a small West German motor vehicle manufacturer specializing in sports cars.

Outside of Germany, VW handles the Porsche line through its dealerships.

Porche motor vehicles are aligned with VW's for corporate average fuel economy comparisons.

B. CURRENT STATUS OF TECHNOLOGY

The status of technology is best assessed by the Porsche participation in Phase I of the "Vehicle of the Future Program."

Phase I led to the development of the Porsche 995 concept, a car able to comply with requirements of the future in a considerable reduction of overall fuel consumption as well as other features.

The Porsche Phase I work showed, for example, the influence of the engine displacement, the fuel consumption during idling and the required driving performance on the overall fuel economy. The analysis of the fuel economy achieved with different engine concepts (Otto/Diesel, number of cylinders, turbo charging, reduced idling consumption) leads to the selection of two engine variants for further examination.

Calculations were carried out to determine the fuel economy of a thermodynamically optimized engine in relation to firstly, the r.p.m of a CVT-transmission, and secondly, the number of gears and spread of the ratios of a manual transmission.

The comparison of several transmission variants (e.g. with hydrodynamic torque converter) shows that the most favorable solution is an automatic mechanical transmission with double-action clutch.

There is an electric system, which, apart from the basic task of selecting the most favorable transmission gear and setting the engine throttle, ignition, air rate, etc., serves to control the drive train in such a way as to have the engine always running in the operating range offering the highest degree of fuel economy.

C. HISTORY OF CO-OPERATION WITH NHTSA

Two papers were presented at the NHTSA-sponsored "The First International Automotive Fuel Economy Research Conference."

These were:

1. "The Porsche 995 Research Car Powertrain - A Contribution to Reducing

the Fuel Consumption" by H. Flegl, Dr. D. Gruden, Dr. I. Szodfredt, R. Wüst, Porsche, Federal Republic of Germany.

2. "Possibilities of Saving Fuel by Switching Off Cylinders", by K. Schellman and A. Schmed, Porsche, Federal Republic of Germany.

D. PARTICIPATION IN WEST GERMANY "VEHICLE OF THE FUTURE"

(See B. above.)

E. SUBJECTS FOR NHTSA/PORSCHE DISCUSSION

(1) Improvement of accident balance.

(2) Reduced noise emission.

(3) Increased service life.

(4) Reliability.

GFMRT RESEARCH PROJECT "VEHICLE OF THE FUTURE" - PRESENTATION AND OBJECTIVES -

by
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1. INTRODUCTION

Traffic - a social and economic necessity.

For the population of our country and the highly-developed economy system based on the division of labour, efficient transport and traffic systems are essential in all areas, from long-distance traffic to internal distribution systems. This not only applies to the Federal Republic of Germany, but also to other countries and is significant for the increasing world-wide interconnections.

Our historical development clearly demonstrates the critical dependence of efficient traffic systems and social and economic prosperity. This forms the foundation of the state's commitment to all matters concerning transport and traffic.

Approaches to solving traffic problems.

Besides the considerable progress made in connection with traffic systems over the past few years, there have also been serious problems. These difficulties are particularly due to the continuing concentration in densely populated areas, the lack of coordination in development programmes and the increasing burden placed on public funds. Furthermore, the environmental pollution caused by traffic has come to light and our dependence on the energy carrier, crude oil, supplies of which are not unlimited and are also susceptible to crises. The aspects of efficiency, economical use and attractiveness of the different means of transport are the subject of critical public discussion.

Great efforts are required in finding the right solutions to set up a well-balanced, integrated transport and traffic system which will respect the interests of the users, the operators and the environment in the best possible way. Apart from improvements to be made in the total planning sphere and in the organisation at operational level, technical innovations will also have to be put into effect.

2. SIGNIFICANCE OF ROAD TRAFFIC, SITUATION

Motor vehicles and the development of road traffic have been the most important technical achievements influencing the social and economic structure of the Federal Republic of Germany since 1945.

In 25 years the number of motor vehicles has increased more than tenfold; from about 2 million in 1950 to around 25 million in 1978. Whereas the proportion of passenger cars accounted for 30 % (0.6 million vehicles) of the total number of vehicles in 1950, they now represent about 86 % (21.6 million). At the end of 1978 over 370 of every 1000 inhabitants in the Federal Republic of Germany owned a passenger car. The automobile, which used to be a luxury for a few, has now become a commodity article for all.

Statistics on annual mileage are just as impressive (see Figure 1) In 1977 passenger and combi vehicles covered a total distance of 265.5 thousand million kilometers and goods vehicles some 32.8 thousand million kilometers. The increase in passenger transport is covered almost solely by individual means, rising from 32 % in 1950 to about 80 % in 1974.

According to forecasts on the future development of individual transport there will be a further increase. Not until 1985-1990 is the motor vehicle sector expected to be repleted.

Essential parts of our present life-style could not have been developed without the basis of individual transport. Typical examples are the structure of residential areas, independence in moving homes or jobs and organising leisure-time activities. The economic and industrial upswing is largely attributable to this development. The high degree of expansion caused an improvement in the standard of living for wide areas of the population which can also be seen as a pre-condition for the increase in individual transport.

The immense growth of motorisation reflects the fact that the passenger car largely satisfies the wishes and requirements of its users, especially for short distances. It will also become more attractive in the future by offering such advantages as a high degree of mobility and independence, versatility of use and comfort.

The fact that crude oil will become scarce in the long term was spotlighted for the first time by the energy crisis of 1973 which also demonstrated the manifold economic side-effects. The automobile industry will have to adjust to this changed situation; the trend towards economical, inexpensive, efficient and safety-oriented motor vehicles is already noticeable and the life expectancy of an automobile is gaining significance.

Even with lower growth rates in the number of motor vehicles there will still be many problems to solve. If the standard of living we have now reached and the undisputable advantages of individual transport are to be maintained in the future, the motor vehicle must be adjusted continuously to its infrastructure and its sphere of influence, especially in the densely populated areas of our country.

Future development of the motor vehicle and of road traffic must therefore be guided by optimum coordination and consideration of individual requirements which are often contradictory, namely:

- guarantee of mobility and supply,
- improvement of safety for maintaining health, life and property,
- maintaining and improving the environment,
- optimum exploitation of energy, economical and flexible use of raw materials,
- enhancement of the scientific, technical, and economic capabilities.

The factors to be considered in the assessment must be oriented on the long-term forecasts of economic and technical developments in accordance with the capacity of society as a whole. This evaluation, however, may not consider only the field of road traffic; it must include all means of transport in an overall survey.

3. THE TASK OF STATE RESEARCH FUNDING

The state cannot fulfil this task by administrative and legislative measures alone. The purpose of intensifying technological research and development is that problems, with which we are being confronted now and more so in the future, will be identified and tackled in good time. Before these problems can be solved, an objective basis for decisions must be founded upon which research and development are a pre-requisite for tomorrow's world. As there is no middle-term alternative for the motor vehicle, its further development is of extreme importance even in the future.

State funds are granted to initiate and enhance research and development work which is essential for achieving economic goals and for ensuring that the needs of the general public are fulfilled. The results gained from this work should serve to reveal the technological potential necessary for making the right decisions.

In all countries such research programmes sponsored by the state are carried out with a high degree of involvement by the automobile industry. This guarantees to a large extent that the research and development work is oriented on practical aspects.

There is a marked trend towards demonstrating the results of detailed investigations on components or from theoretical studies in test aggregates, in this case vehicles. For a definite and sound basis for assessments decisions can only be founded on the experience gained from the practical testing of the most promising concepts under realistic road traffic conditions.

This same trend also applies to the funding activities of the German Federal Ministry for Research and Technology (GFMRT) in the field of motor vehicles and road traffic.

The sponsorship programmes so far have concentrated on searching for essential and better solutions to technological features of motor vehicles and road traffic. Due to the necessarily extensive fundamental subject matter and the limited funds of 10 million DM per year, the studies and projects carried out up to now have been relatively low-scale. Some initial larger-scale demonstrations were made possible on methanol fuel, non-cooperative radar warning systems and electronic route guidance systems of which the latter are at present in the test-preparation phase.

4. BASIC CONCEPTIONS ON THE PROJECT "RESEARCH VEHICLE"

As the funds for the field motor vehicles and road traffic have been increased substantially the project "Research Vehicle" has been announced and proposals were invited at the beginning of 1978.

This project represents the first attempt in the world to demonstrate the total findings from all areas of automotive technology in the form of integrated concepts of experimental passenger car models by the automobile industry and a working group of four university institutes.

The aim of the project is to devise an integral concept of a passenger car of the future. It is mainly a case of determining the technological potential of a combination of the most promising individual solutions, thus forming an improved basis for decisions. The paramount objectives are improving the safety, the quality of the exhaust gas, the exploitation of energy, the service life expectancy, and recycling possibilities paying particular attention to the economical aspects.

The programme should also enable the results of current research projects to be demonstrated in the development of the total vehicle concepts, it should verify the success of previous, GFMRT funding programmes and reveal practicable guidelines for future research and development work.

The following requirements will be the main factors considered in the development of a passenger car of the future:

- energy and resource conservation
- environmental compatibility
- safety
- economy and high utility value

which is to show an average 30 % improvement compared with a vehicle of the present.

It is assumed that the fulfilment of these requirements can be optimised in different ways and that as a result, different solutions may be presented.

In the assessment of the completed vehicle it is possible that higher improvements in one area can be set off against lower improvements in another area, thus enabling the tenders to select focal points with the highest possible efficiency and to set priorities. At the same time each tenderer has the possibility of realising the special features and concepts particular to his company.

The programme schedule described below should help to achieve the defined targets together with largely self-determined methods of performance (Figure 2). For this reason, also, no established specification list was prescribed, instead phase 1 of the project includes the development of competitive, specification lists by the contracted parties.

In May 1978 approval was granted to commence with the first phase of this project. It will be completed by June 1979 and, in conjunction with the results and the vehicle design, will form the basis for the decisions on the construction of prototypes for phase 2 of the programme. The third phase which consists of testing and evaluation of the development results is closely connected with phase 2.

5. GENERAL REQUIREMENTS

Taking into account the 30 % improvement to be effected, general requirements will be given as a basis for the preparation of the competitive specification lists. They will be used by each tenderer for his own specification list with his pre-selected focal points and company priorities to devise a concept for the passenger car of the future. Non-realistic concepts are not the purpose of the proposals. This is emphasized in particular by the demand that the vehicle should have the capacity for large series production.

Besides the requirement of devising a concept of a passenger car, the following general conditions are also to be fulfilled:

- **at least 4 seats**
- **more than 400 kg payload**
- **compliance at least with the present standard of driving comfort in the respective vehicle category, e.g. dimensions, interior noise level, comfort (K-value)**
- **compliance at least with the present standards of driving performance and cruising range, e.g. acceleration from 0-100 km/h in less than 13 secs., max. speed 140 km/h, cruising range 400 km**

- compliance at least with the valid and anticipated regulations and standards in the Federal Republic of Germany and in the European Community.

The general requirements set for these conditions are explained in the following.

5.1 ENERGY AND RESOURCE CONSERVATION

The question of preserving raw materials is becoming increasingly important. The concept of a vehicle of the future will therefore have to be assessed to a great extent according to the usage of non-recyclable raw materials. This applies in particular to the fuel consumption.

The corresponding requirements are then:

- significantly reduced fuel consumption compared with the EC-proposal and DIN 70030 in the 1.7.78 version, at least (ECE-cycles + 90 km/h + 120 km/h)* for the weight categories

	Pr	1250 kg - 7,0 l/100 km
1250 kg	Pr	1700 kg - 9,5 l/100 km
1700 kg	Pr	2150 kg - 11,0 l/100 km

* Weighting factors: ECE-cycle 0,5; 90 and 120 km/h 0,25 each

- reduced consumption of energy in the manufacturing process
- improved recycling capacity.

Compared with the total consumption of primary energy in the Federal Republic of Germany, road traffic accounts for only about 11 % (1977) but the proportion of consumption of crude oil, is about 21 % (1977).

The problems connected with the supply of crude oil, in particular, are the most neuralgic points of any energy policies and will remain so in the future, which explains why the development of vehicles for the future must concentrate on reducing fuel consumption to a far lower level.

In respect of the total energy consumption of a vehicle (Figure 3) during its life cycle the fuel consumption represents by far the largest part at over 80 %. Recognition of this fact should prove to be the first step towards concentrated efforts to save energy.

Figure 4 shows the fuel consumption of some passenger car types, 1976/77 models, registered in the Federal Republic of Germany. The regression line A shows the mean consumption values. The nearest equivalent of the target of a 30 % improvement is shown by the consumption values of curve B with a permanent reduction in consumption of 30 % compared with curve A. This permanent function also avoids difficulties in borderline weights between two categories. Seen as a whole the envisaged 30 % reduction for the same type of vehicle with the same kind of drive will most probably be more difficult to put into effect for the lighter-weight vehicles. Difficulties arise in connection with the test procedure owing to the fact that today's test benches are not infinitely variable in their weight adjustment.

Curve C depicts the consumption values given in the GFMRT invitation for tenders taking into consideration the weight categories proposed by the UBA (German Federal Office for the Environment) for exhaust fume measurements. The constant consumption value of one weight category corresponds in each case approximately to a 30 % reduction of the mean values of line A. Although this leads to a decrease of the 30 % requirement compared with curve B for most of the weight categories, this proposal has the advantage of having less disputable and more discriminate values and of being able to use the existing test benches.

The problems arising in connection with this procedure are in the disadvantage resulting for the heavier vehicles of a weight category. A reduction of this relatively high requirement for these weight categories, for example like in curve B, would be too great a decrease of the 30 % improvement and would probably not be compatible with the objectives of our energy policies.

Saving energy is very closely connected with the necessity to conserve resources. It may be true that the resources for the most important materials in automobile construction will not be exhausted in the near future, but still we must recognise the fact that they are becoming increasingly limited.

Recycling, i.e. the employment of used products and materials in the fabrication of new products, should therefore gain significance as one of the basic principles of future developments. The basis for the recyclability of used vehicles is already being formed at fabrication level.

The selection of materials for fabrication must therefore be made considering the following aspects:

- availability (resources and price)
- energy consumption in recovery, processing and operation
- recycling capacity.

In This connection it can be assumed that the necessary technology for the metallix materials is available - indeed the recycling of used vehicles already represents one of the highest recycling rates.

This means that emphasis must now be placed on the recycling of the non-metallic parts and a solution must be found in the near future, especially for the recycling of used tyres and plastics.

5.2 ENVIRONMENTAL COMPATIBILITY

The worldwide increase in motor vehicle traffic has caused considerable problems especially in urban areas. Whereas 15 years ago the main problems were the need for car parks and a better traffic flow, the last 10 years have caused the public to reflect more on the environmental pollution by exhaust gas and noise emissions for motor vehicles. The measures taken to reduce the pollution of the environment caused by motor vehicle traffic have so far been concentrated mainly on the exhaust gas emission.

However, the measures taken in this sector alone are insufficient. General inquiries have shown that about 28 % of the population of the Federal Republic of Germany, even in residential areas, are troubled by the problems of traffic noise.

Thus environmental protection in respect of noise has also been put on the priority list by the Federal Government and is manifested in particular by the major project "Automobile Tyres with Reduced Noise Emissions" which is running parallel to the "Research Vehicle" project.

The general requirements in the invitation for proposals for the research vehicle project taking the conditions described above into account are as follows:

- The pollutant emissions in the exhaust gas should not exceed the values proposed by the UBA for 1982.
- There should be a considerable improvement in the non-restricted pollutants, e.g. soot.
- The noise emissions, as described in ISO R 362, should be less than 73 dB (A).

The background to these requirements is explained briefly in the following.

Investigations on correlations between air pollution and motor vehicle traffic and the conclusions drawn from them with regard to vehicle exhaust gases being detrimental to health have caused the legislature to take measures against further air pollution. Besides stipulating maximum permissible tolerance values for emissions of new vehicles, great efforts are being made to establish the present situation of emissions in order to adapt the legislative measures to the actual requirements of environmental protection and to discover possibilities of improving the situation.

The basis for testing the exhaust gas emission behaviour of newly registered vehicles is the European Test Cycle according to ECE R 15. Figure 5 shows the historical development of the tolerance values to be adhered to in this test for CO, HC and NO_x and the UBA proposal for the 1980s for which the CVS procedure is also to be used in determining the emissions. These tolerance values apply only for passenger cars with spark ignition engines up to the end of 1979. The UBA proposal, however, will also include passenger cars with diesel engines. Until then limits are placed on vehicles with diesel engines only in respect of the smoke opacity at full load and with unrestricted acceleration depending on the vehicle type to supervise in-use vehicles.

Measurements taken from in-use vehicles (European Test Cycle with cold starting) show definite improvements in respect of the CO and HC emissions resulting from the tolerance values enforced so far; however, in respect of the NO_x emissions there has been an increase, see Figure 6.

When applying these results to the emission forecasts of selected pollution areas, it becomes clear that the enforcement of the tolerance values proposed by the UBA would result in a further significant reduction of the exhaust gas emissions caused by road traffic, see Figure 7.

Thus the application of these tolerance values in the research vehicle project appears to be both justified and essential.

With regard to the pollutants upon which at present no restrictions have yet been placed - these being mainly odorous substances and particulates - improvements must be made on today's level as, from a medical point of view, these should be considered as even more detrimental.

In respect of noise emissions it has been established that objective improvements in the noise situation are not reflected fully in the subjective feeling of the population. This is surely a question of increased consciousness of the problems of environmental pollution. A chart of the effects of noise on people and their reactions to it can be seen in Figure 8.

This situation must be taken up by the legislature and the research funding bodies. The tolerance value to be attained by 1981 according to ISO R 362 is 80 dB (A) for passenger cars. In Switzerland this same tolerance value will already be applied this year in vehicle type tests.

1985 will most probably see a reduction of the tolerance value to 78 dB (A) and perhaps a change in the measurement procedure. The UBA proposes a value of 72 dB (A) for the same time, but it is not yet definite whether the legislative bodies will give their general approval on this value.

In this context a tolerance value of 73 dB (A) appears worth striving for and realisable for the research vehicle project.

The measurements according to ISO R 362 are to be applied in awareness of their restricted possibilities; on the one hand due to the lack of a measurement procedure representative of practical driving conditions which is accepted by all concerned and, on the other hand, to ensure comparability of the results with the present level of technology.

5.3 SAFETY

The general requirement for this sector is that:

- the actual accident balance (fatalities, injuries, consequential costs) is to be reduced by at least 30 % for accidents involving passenger cars by taking appropriate measures in primary and secondary safety.

  Reference figures are the accident participation and the market share of the corresponding mass category. Of the total number of fatalities in road traffic about 85 % of the people are killed in or by passenger cars which means that the reduction of the total number will amount to about 25 %.

As the demand for motor vehicles increased rapidly after the war and motorisation became more common for wide areas of the population, safety researchers concentrated their efforts more on safety elements which contributed towards accident avoidance. Thus, besides the larger dimensions of the compartment, the newer models are marked by their increased performance, better driving comfort and improved road holding. Apart from these features, further improvements were continuously made in particular to brake systems, lighting systems and the driver's field of view.

The increased density of vehicles and the growing number of accidents showed, however, that the measures taken in accident prevention were not sufficient. Therefore the measures taken in vehicle construction began to be concentrated on occupant protection.

The development of these elements and systems of vehicle safety was completed some time ago and they have become an integral part of serial production. But despite the noticeable improvement in occupant protection, the rapidly increasing losses in road traffic produced an intensified feeling of failure in the development of safety technology.

At this point, initiated by the US Department of Transportation, the programme of the Experimental Safety Vehicle (ESV) was performed through the world. The conclusion drawn from this programme was that although great improvements could be made regarding occupant protection with unrestricted technical expenditure, the vehicles constructed to safety these needs could in no way meet the requirements of traffic and the market.

Subsequently, the project RSV (Research Safety Vehicle) was begun in 1974.

The aim of this project is to compile a technological data base for the formulation of FMVS Standards in the mid-1980s. The conceptual introduction into the vehicle population should have the effect of maxinizing the expediency of safety systems, i.e. the benefit by which the societal savings exceed the costs of safety system implementation.

One of the most significant differences compared with the ESV programme is the emphasis on the "three E's" - Energy, Environment, Economy.

The basic notions in the present GFMRT project are to turn away from the separate consideration of safety measures (e.g. primary safety on the one hand and secondary safety on the other) and also from the sole consideration of occupant protection, see Figure 9.

This means departing from numerical guidelines and from the demand for completing certain individual tests. At the same time, however, it will then become more difficual to show proof of the propaged safety benefit.

At present two GFMRT research projects are being carried out which may supply the necessary aids:

- the compilation of a driving behaviour catalogue

This involves carrying out representative driving behaviour tests to determine the scattering range of the driving behaviour of a modern passenger car which can lead to a basis for comparison for the demonstration vehicles.

- Within the project "Development of compatible vehicles" assessment methods are to be involved on the basis of accident statistics and representative collision tests to determine the expediency of measures taken to improve secondary safety.

Currently the most comprehensive statistical material in the world is being compiled on passenger car accidents and safety belt usage rates and an order of rank of the different types of collisions is being prepared which forms the basis for driving tests with basic (series) vehicles. These may develop into a basis for the evaluation of secondary safety.

5.4 ECONOMY AND UTILITY

One of the main features of the invitation for proposals concerning the research vehicle is the demand that the technical solutions realised in the demonstration vehicles should have the capacity for large series production.

This does not mean that these vehicles as such should fulfil the requirements of large series production in every respect. However, it is not the object of this demonstration project to implement solutions which may be technically attractive, but which are not capable of being put into large series production for various reasons in the foreseeable future.

This requirement is underlined by the inclusion of the complex, economy and utility, in the general guidelines of the invitation for proposals.

As this complex finally determines the construction of a vehicle, identifying its manifold individual aspects with individual values cannot be the purpose of an invitation for proposals.

The announcement stated:

Provable and convincing improvements should be shown in the following areas:

- Service life
- Ease of repair
- Ease of maintenance
- Reliability
- Invariability of set values
- Use of electronics
- Capacity for large series production of the vehicles
- Economical operation of the vehicle to be proven by a systems analysis.

The leading motive in the development of the competitive - even risk taking - specification lists should be the most far-reaching implementation of innovative solutions, as long as the increased fabrication costs are compensated as far as possible by the lower costs of operation and improved recycling when considering the total life-cycle costs.

This basic conception must surely correspond to the funding philosophy of the state research funding for technology.

VEHICLE OF THE FUTURE **Plaßmann/Burow**

SUMMARY

The German Federal Ministry for Research and Technology (GFMRT) in the field of motor vehicles and road traffic started a 3-phase project "Research Vehicle" the first phase of which is in its final stages. The aim of this project, started in 1978, represents the attempt to demonstrate the total findings from all areas of automotive technology in the form of integrated concepts of experimental passenger car models.

Paramount objectives are improving safety, energy and resource conservation, environmental compatibility, economy and utility, which are to show an average 30 % improvement compared with a vehicle of the present. Non-realistic concepts are not the purpose of the project, this being emphasized in particular by the demand that the proposed vehicles should have the capacity for large series production.

It is mainly a case of determining the technological potential of a combination of the most promising individual solutions, thus forming an improved basis for decisions.

It is assumed that the fulfilment of these requirements can be optimised in different ways. For this reason, no established specification list was prescribed, instead phase I of the project includes the development of competitive specification lists by the contracted parties. Thus the tender should be able to select focal points with the highest possible efficiency and to set priorities; at the same time each contractor has the possibility of realising the special features and concepts particular to his company.

Phase I will be finished at the end of June 1979. After evaluation of the competitive concepts, phase II - development of the vehicles by the selected contractors - will start in October 1979, followed by phase III - testing and evaluation of the experimental vehicles - in 1981.

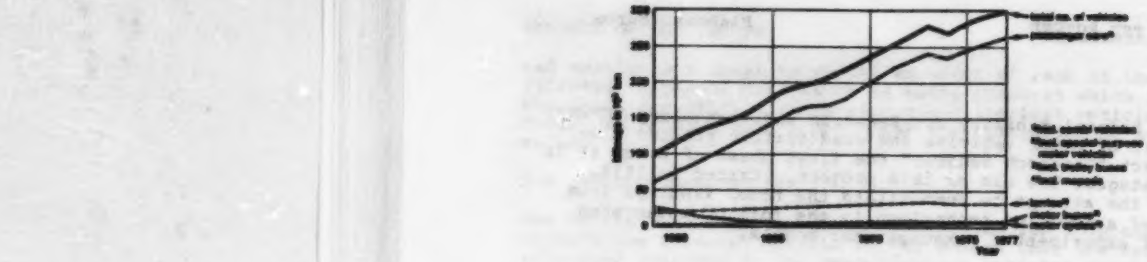

Fig: 1 Mileage of motor vehicle traffic

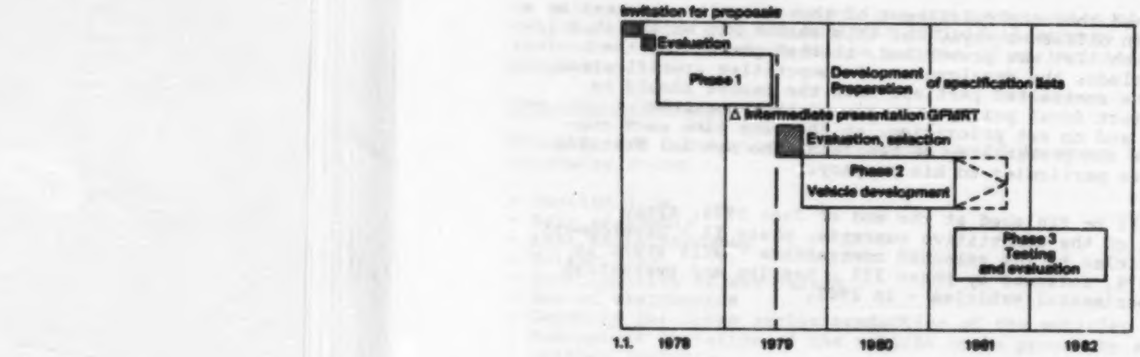
Invitation for proposals
Evaluation
Phase 1
Development
Preparation of specification lists
Δ Intermediate presentation GFMRT
Evaluation, selection
Phase 2
Vehicle development
Phase 3
Testing
and evaluation
1.1. 1978
1979
1980
1981
1982

Fig: 2 Time schedule of the "Vehicle of the future"-programme

Fabrication	12,000 kWh ≙ 9,16%
including	
parts	9,000 kWh
assembly	3,000 kWh
Operation	109,000 kWh ≙ 83,21%
including	
fuel consumption	107,000 kWh ≙ 81,68%
one bodywork repair	2,000 kWh
Recycling	10,000 kWh ≙ 7,63%
Total	131,000 kWh ≙ 100%

Fig: 3 Total energy consumption of a vehicle after 100,000 km cruising range mass 1,000 kg

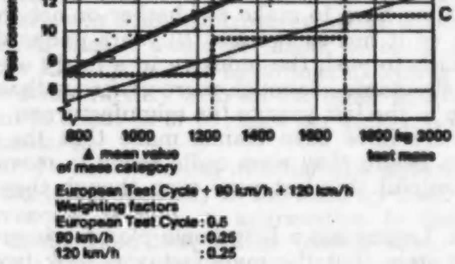

Fig: 4 Fuel consumption of several vehicles registered in the Federal Republic of Germany depending on the test mass determined according to DIN 70030 in the version of 1.7.1978

Ms. Claybrook. Based on all of the things we have done to date, it is clear to us that the manufacturers have not had any adverse impacts from the standards in terms of the historical industry practice of capital investment, and so on.

What we are looking at now is what their position is likely to be in 1985 through 1995 and for the year 2000, economically as well as technologically.

The technological area is promising, from what we know at this moment. The most difficult assessment is the economic one.

Mr. Sharp. You do not feel comfortable yet in addressing that issue?

Ms. Claybrook. We just do not have enough information at this moment. We are going to be asking the industry for additional materials and trying to make some projections. When you are projecting 20 years hence it is a very difficult issue.

The automotive industry is a very cyclical industry. The health of the industry is highly dependent on the state of the economy. No one has been very successful in projecting the state of the economy in the last 10 years. I am not sure if we attempted to do it for the next 5 to 20 years we would be very successful either.

In terms of the demands on the automotive industry in the future, everyone recognizes that if they do not improve their fuel economy rather dramatically, not only up to 1985 but thereafter because of the shortage of oil and because of the dependence of this country on foreign sources of oil and the competition from abroad in the automotive field, that there will be heavy demands on American industry regardless of the Government's role.

The assessment we have to make is whether or not the Government should try, as it has in the last 10 years under the statute you helped to enact, to push the industry in a fairly even-handed, steady way. The standards are much more generous than the marketplace has been in the last year to the manufacturers.

Mr. Sharp. There have been claims made that the standards helped push them before they were quite ready to move and may have been very helpful this last year even though they were not that stringent.

Ms. Claybrook. Laying out a long-range plan for improving fuel economy and the steps that the manufacturers took from 1975 to 1980 in recognition of those demands were very important to their not being more devastated than they are today.

Mr. Sharp. Can you give us any impression you or your staff has about how the industry perceives things beyond 1985, to what degree are they simply trying to prepare for those standards and take them through 1985, which obviously has to occupy their essential concern, but to what degree do you see them looking beyond that and seriously considering alternative technologies and going for greater fuel economies than what the law requires?

Ms. Claybrook. The automotive industry is looking beyond 1985 for fuel economy purposes. General Motors has announced its intention to manufacture an electric car, which is certainly one indication of that. Other manufacturers are realizing that unless they invest today in technological improvements, the needed improvements are not even going to be available by 1985. Those technologies have to be the kind of thing they are looking for in the post-1985 period.

The thinking of the Detroit manufacturers has changed during the last year. This time last year they were focusing on cutting back the 1981 to 1984 standards and presenting materials to us suggesting that was a proper thing to do, that the standards were not cost beneficial. As you know, we disagreed with that.

By summer, the gas lines were forming and aggravating the public. The manufacturers, by last summer, acknowledged that standards were really not the problem and they had to reorient their thinking for the future.

We are very pleased they are looking at the problem in a longer-range cycle. In the past, the automotive manufacturers have looked in a fairly short-term way at the future marketplace. Now they are looking at it in a much longer term.

There is no question that now they are looking long term, and they are looking not only at what they can do but at the availability of fuel. That is really going to be the most difficult problem they will face 15 and 20 years hence.

Mr. **Sharp**. In that vein let me ask you about something that is the most common question I get in town meetings at home about automobiles. What is your understanding of the 84-miles-per-gallon automobile that is so widely publicized and its possibility of being utilized?

Ms. **Claybrook**. The claim of the man from Florida?

Mr. **Sharp**. Yes.

Ms. **Claybrook**. I believe we estimated before it was tested by EPA and there was some controversy about whether it should be tested by EPA, that it would get about 50 or 52 miles per gallon tested on the EPA cycle. The advantage of testing it on that cycle is you have comparability with all the other manufactured cars. It did come out to about 52 or 53 miles per gallon. It did not meet the emission standards.

Mr. **Sharp**. I was wondering whether that automobile or versions of it are being taken seriously in the industry itself.

Ms. **Claybrook**. It was an aggravation to the manufacturers because it made them look rather foolish when they were complaining about having to meet a 25-mile-per-gallon standard or 20-mile-per-gallon standard.

There are a number of cars in the marketplace that far exceed the existing standards. One we tested for Volkswagen got 60 miles per gallon, which was not dissimilar from the one you referred to. That was on the EPA cycle. It did meet the emission standards. That was a VW Rabbit diesel with a turbocharger.

We have a particular concern not only about fuel economy but about the safety characteristics of the cars as well. What interested us about this particular VW was that it met crash standards at 40 miles an hour as well as having that very high fuel economy.

For the future, one of the issues we all have to be concerned about is that more fuel efficient cars are going to be much smaller and, in the process increased safety provisions will have to be built into them, or otherwise the death rate is going to go up dramatically. With 50,000 people now killed every year at a cost to the Nation of $50 billion from the harm that occurs due to these auto crashes, we have a very deep interest in the safety aspects of the cars.

We have had underway experimental safety vehicle development activities having both of those factors built in.

There are some contradictions between more fuel efficient and safer cars, depending on how you decide you are going to design your vehicle. What we have been interested in showing is the fact that there do not have to be those contradictions if you set those as your two criteria together as you design your cars.

The manufacturers really have a unique opportunity in the 1980's to make both those criteria primary so that the cars do not become less safe.

We were pleased to see that when we tested the new Mustang and the new Citation and the Omni/Horizon at 35 miles an hour, which is 5 miles an hour above our standard, they were able to meet injury criteria in excess of the standard even though they are quite small and fuel-efficient vehicles. We hope that becomes the trend in the industry in the future and that the manufacturers do not sacrifice the safety provisions which they know how to incorporate.

Mr. **Sharp**. You alluded earlier to everybody's concern about whether the economics are there to support the industry to make dramatic changes. I assume this is a part of the question as to redesigning these vehicles.

Do you have any estimates or indications of their capacity to move on these?

Ms. **Claybrook**. The industry will be redesigning the vehicles anyway for fuel economy purposes. That has already been decided and laid out. The cost of incorporating improved safety when you do that is miniscule. It has to do with the structure of the vehicle and whether you design the structure in such a way to properly absorb energy. It also has to do with the restraint system you put in. Designing a decent restraint system is not terribly difficult depending on the basic design of the car.

The improvement of side impact protection also is basically a structural kind of change in the car.

Our experimental safety vehicle that crashes well at 50 miles an hour, which is a very high capability, weighs 2,500 pounds, gets 32 to 38 miles per gallon fuel economy. It has been estimated by outside estimates to cost in the range of $6,000 at the levels of manufacture, 300,000 units or so, which would create economies of scale. It is not an extremely expensive thing to manufacture, but it has to be a priority. It has to be something you decide you are going to do when you start to design that car to put those things into it.

The key expense of the manufacturers is the whole process of redesign, changing the engines primarily, which is very expensive comparatively. Safety is a very cheap fix.

Mr. **Sharp**. As I understand it the light duty truck standards are coming out this morning. While some people may be aware of what they are there have been a number of concerns raised about them already. We cannot have a very thorough hearing on that since we do not really have the data.

The concern has been raised that in particular the Chrysler Corp. would have difficulty meeting them in the first couple of years. I wonder what is your understanding of their situation with respect to these standards?

Ms. CLAYBROOK. The standards we issued this morning only cover 1982 light trucks and vans and not the other 3 years for which we have already issued a proposal. We are going to wait until later this year to issue that because we decided it was too much of a demand on the manufacturers to issue them all at once due to of the response we require from the manufacturers in designing the standard.

The standard is set at 18 mpg for the two-wheel-drive vehicles and 16 mpg for the four wheel drive. Every manufacturer except Chrysler told us that in their own estimate they would exceed the standards.

Chrysler is slightly below the standard we set relative to what they told us they could achieve. We believe Chrysler could make minor improvements which might almost bring them up to the two-wheel-drive standard. even if they did not do that they have more than enough credits from 1981 to counterbalance any kind of penalty that might accrue.

Chrysler would receive no penalty. All the other manufacturers are going to accrue very substantial credits in the millions and millions of dollars.

We set a fleetwide average fuel economy standard, one standard for the entire industry. We are required by the statute to set a maximum feasible fuel economy standard.

The balancing act we must go through is to make sure that we set the standard as high as we possibly can without severely disadvantaging a number of companies.

For four-wheel-drive vehicles, Chrysler is below the standard by more than for the two-wheel-drive vehicles and does not have enough credits, based on what they told us from 1981, to counterbalance all of the penalty; but, they would counterbalance a portion of it. They may be able to also make a couple of other small improvements which would bring them up to the standard. If they do not, the statute has a provision in it allowing, on the recommendation of the Federal Trade Commission, a waiver of any penalty if it would harm competition.

About a year ago, the Secretary of Transportation wrote a letter to Chrysler Corp. in which he indicated that, should a substantial penalty accrue to the company given its financial condition at that time, that, upon the recommendation of the Federal Trade Commission, they would certainly qualify under the statute for waiver of the penalty.

That is the best assessment I could possibly give you at this time. You may want to ask them more details.

Mr. SHARP. You think they are safe on the two wheel drive. It is your understanding they will be able to make that or at least have adequate credits?

Ms. CLAYBROOK. That is right.

Mr. SHARP. The carryover/carryback is similar in the truck?

Ms. CLAYBROOK. It applies to trucks or cars.

Mr. Sharp. Your argument there is they should have enough credits. Is that based upon their having to make changes? Was it based upon their previous assumptions that they would have to make new investments and alterations?

Ms. Claybrook. It is based on what they told us they were intending to do for 1982. They also have to remain competitive in the marketplace. Even with the improvements they indicated they intend to make, they are going to be substantially below a number of the other manufacturers.

Rather than use numbers, I have tried to discuss this in broader terms because I am constrained by Chrysler's request for confidential information from giving you the exact numbers.

Chrysler is really under two pressures. One is from their competition and the second is from the standard.

Mr Sharp. It is your understanding they are likely to put themselves in the position of having a penalty?

Ms. Claybrook. A relatively small penalty. We think less than $3 million at worst. We think it will probably be a lot less than that and they would qualify more than likely for the waiver.

Mr. Sharp. The corporation in recent months has found pennies to become a very significant cost.

Ms. Claybrook. I do realize that. We did consult with the Treasury Department extensively before we set this standard.

Mr. Sharp. One suggestion has been made that perhaps we should grant some temporary relief in Congress by a procedure whereby we might count their import of their own truck manufacturers abroad, a certain number of those trucks for 1 or 2 years. They would average out on the standards and therefore avoid the penalty. That would also alleviate having to get FTC to agree.

One of the things I understand is it does not matter what Mr. Goldschmidt or you would be willing to do but it is what FTC is willing to do and whether or not they would take the same view.

Ms. Claybrook. We have consulted with the Federal Trade Commission. I obviously cannot speak for the Commission. I am sure they would not want to speak on a projected as opposed to an actual case anyway. Their responsibility under the statute is to assure competition in the marketplace.

Chrysler manufactures a rather substantial number of vans and light trucks. They are more competitive in that market than in the car market in many ways. If the company would be substantially harmed because of the penalty, it seems to me the Trade Commission would have a hard time not finding the penalty would cause a substantial lessoning of trade.

That is obviously their judgment and not mine. I think if you look at it from the words of the statute, you would have to presume that.

Mr. Sharp. One other problem strikes me that one of their struggles has been to maintain throughout all of this buyer confidence that they can expect to have their trucks and automobiles on the market repaired and what not over the next few years. While this may not be an end all to that proposition it strikes me you may have difficulty if there is a continuing frustration out there with the public and governmental agencies saying yes or no, Chrysler will survive.

I realize this penalty is not likely to be the test of whether they survive.

Ms. CLAYBROOK. It will not be known to anybody until the end of the model year. I am not sure in terms of affecting their reputation that would be at issue.

The much more difficult prospect for Chrysler is the one-on-one competition with similar trucks or vans in each different segment of that market. That is really going to be their major problem, depending on what kind of changes they decide to make in their vehicles.

Mr. SHARP. I think we will have a specific request made before the subcommittee next week in the Chrysler testimony for a specific course of action possibly along the lines I outlined.

I wondered if perhaps you people would have a final position on that today or perhaps if you do not we could get further responses from you on what you think the effect of that kind of proposal might be.

Ms. CLAYBROOK. The Department has not been enthusiastic about peppering the statute with a lot of special provisions, as I think my testimony in other regards made evident. We think the existing statute is adequately designed, and very beautifully designed in many ways, to have the flexibility to take care of particular problems.

Additionally, we have proposed an amendment to the statute for a 3-year, carryback/carryforward credit. I have only commented on Chrysler's position with regard to the trucks as to the present law, which contains a 1-year carryback/carryforward credit.

Should Chrysler decide they are going to make some significant changes in their trucks in the next 3 years, they would also have the ability to carryback and to eliminate a penalty, which is another reason for having that additional flexibility in the statute.

The first thing the subcommittee ought to look at is, whether the present statute is adequately designed to operate to take care of the problem, rather than to design a lot of different special provisions.

We rejected the counting of captive imports in the corporate fuel economy for trucks and vans. We did so for a variety of reasons particularly since we had previously rejected doing this for the 1980 and 1981 models.

We believe the advantages of moving to domestically produced and more fuel efficient vans and light trucks is preferable.

We did not recommend that ourselves. We also did not think we could do it for one company without doing it for all companies. If we did it for all companies, there would have been a lot of opposition to it.

If you allow the counting of those vehicles, then the maximum fleetwide average fuel economy Chrysler could achieve would be higher. I am not sure you really gain a great deal by doing that because if they are going to import say 80,000 more fuel efficient vehicles then you have to calculate what they can achieve. It would be a higher level than what they previously could achieve which would allow the Department to set a higher standard and that still would not provide relief, I do not think, for their present vehicles.

Mr. **Sharp**. I think the assumption of the proposal is you would account for the purposes of meeting the standards.

Ms. **Claybrook**. If you did it administratively, we would be constrained. If you did it legislatively, you can obviously design around that. I would urge you to look and see whether or not the carryback/carryforward and the present waiver provision do not adequately take care of the problem.

Mr. **Sharp**. Thank you. Mr. Corcoran?

Mr. **Corcoran**. Thank you, Mr. Chairman.

Ms. Claybrook, in the hearings our subcommittee had last year regarding the CAFE standards, a panel of representatives of automakers testified. As I recall their testimony the conclusion I drew was that to comply with the fuel economy standards set forth in the law, they meet those standards mainly by introducing new vehicles or new models.

Would you know whether or not any other agency of Government or whether your own agency has done any examination of their performance to see whether or not that is true?

Ms. **Claybrook**. If you look at what has happened in 1977 through 1980, which are the only years for which they have introduced new vehicles to date, they certainly have met the standards. It is traditional in the automotive industry to have a turnover of new cars every so often. It used to be every 3 years and then it gradually turned into about every five years where they actually redesigned a car and introduced a new model.

It looks as though it will be somewhere within that range for the future. They have introduced new models that have been extraordinarily more fuel efficient than their predecessors, without any question.

Mr. **Corcoran**. I am wondering if they have not probably reached a plateau with their existing models and that the introduction of new models is about the only thing they are doing in order to comply with the corporate average that is required under present law.

Ms. **Claybrook**. No. There are many technological improvements and changes that can be made. Generally, the way we estimate the capability of manufacturers to improve the fuel economy of their vehicles is to look at whether or not in a particular year they are going to introduce a new model or, if they are going to continue an existing model, what smaller things can be done to improve it; whether it has radial tires, for example. A brandnew model might have better aerodynamic design or be smaller and weigh less and use a different engine.

The technology available certainly has not been used up. The projections we made in setting the standards through 1985 were based upon some very important and exciting technologies that will be coming on the marketplace to improve fuel economy.

I do not think, by any means, that we have reached a plateau.

Mr. **Corcoran**. I am pleased to hear that. I realize the gas guzzler schedule would have an impact at the other end. When you factor in weight and some of the other considerations, you do ultimately reach close to a plateau.

I was just wondering if there was any attempt on the part of your agency or any other agency to quantify just to what extent they meet the standards by simply introducing new models.

Ms. **Claybrook**. We did not distinguish the incorporation of new technology and new models. We could perhaps give you a listing of the new models and what they have achieved if you would like.

Mr. **Corcoran**. That is not necessary. I was just wondering if any study had been done.

As you know, one of the amendments that was a part of the Chrysler legislation deals directly with the CAFE standards and would permit the inclusion of electric vehicles.

As I understand it, the rulemaking procedure is to be completed for that by sometime in November. I know your agency is involved in that. I was just wondering whether or not you feel you are on schedule in meeting the rulemaking requirements.

Ms. **Claybrook**. That is a difficult question to answer until we get a little bit further along. We have taken a look at it. DOE has primary responsibility in this area, and we consult with them. We try to meet the statutory demands on our agency and in cooperation with the other agencies that are involved.

Perhaps I could let you know a little bit later in the summer if we have any problems with it. At this point I cannot foresee any at this moment.

Mr. **Corcoran**. I would like to be kept informed, as I was the House sponsor of H.R. 3718 which in essence was incorporated as section 18 of Public Law 96-185, the Chrsyler Corporation Loan Guarantee Act.

Ms. **Claybrook**. We certainly will do that.

Mr. **Corcoran**. Thank you.

Mr. **Sharp**. Chairman Dingell?

Mr. **Dingell**. Thank you.

I was in Michigan last night. I want to express to you my particular appreciation of your presiding over this meeting.

Ms. Claybrook, I would like to welcome you and your associates to the subcommittee and thank you for your assistance to us today.

We have as you know a difficult time of crafting a good series of proposals on this which will help the American consumer and not destroy the American auto industry; stimulate jobs in this country and deter advantages which exist unfairly in favor of corporate Japan and other places which are competing unfairly with U.S. manufacturers with the great detriment to employment and opportunity in this country.

I just returned last night from the city of Detroit where I find unemployment is now bettering 10 percent and where I find the actual levels of unemployment in many senses is exceeding amongst youngsters between 18 and 25, where it is now exceeding somewhere between 18 and 75 percent.

You can understand we have a very serious problem in terms of trying to provide mechanisms that will meet our national goals of energy efficiency and a clean environment and at the same time to preserve the well-being of our economy.

I observe at this particular minute there are large numbers of failures among auto dealers because of the employment situation which is depressing the market but I am also observing they are having enormous difficulties in simply floor planning automobiles. It is costing somewhere as high as $200 to $500 a month simply to floor plan a car.

The situation is very serious and your help and that of the Department in terms of achieving highly sensible national policy which is balanced and which treats our foreign competitors fairly and which at the same time brings to a halt some of the unfair behavior that we have observed in our area where car manufacturers in Japan have sold for $400 less in this country after traveling halfway around the world then it was in Japan.

Certainly that is a curious event and indicates that our Government must craft its policies carefully to assure the best interests of all concerned.

Having made those comments, we have just received the Comptroller General's report to the Congress dealing with the effects of certain Federal controls and more specifically the controls on fuel efficiency.

Have you had a chance to review that?

Ms. CLAYBROOK. Mr. Chairman, we have not had a chance to look at that. I was aware the study was underway. We have not looked at the final document.

Mr. DINGELL. We will see you get a copy. The reason I bring it to your attention is the digest has a number of interesting comments. It says "The possible effects on supplies and pricing for basic industrial materials, iron, steel, aluminum, plastics, and radium were never explicitly evaluated by the Government before the automobile fuel efficiency standards were adopted."

They come down to this statement in the summary and it is something I think should trouble us all because our goal in the automobile fuel efficiency or one of the goals is the question of the deficit in the balance of payments.

They say:

> The U.S. balance of trade deficit may suffer rather than benefit. Furthermore to meet fuel economy and environmental air quality standards at the same time, automobile pollution control devices may require more radium than will be available and force the price of this scarce metal drastically higher.

They further make this comment.

> Both of the consequences contribute to unstable inflationary materials markets and neither was foreseen when the standards were enacted because the Government made no systematic appraisal of their impact.

They make a series of recommendations. I know your agency was called on to give comments. I would think after review we would appreciate your comments as to what the real consequences of what we are doing here might happen to be in the light of the GAO's analysis and evaluation. I think a balanced approach and one which deals sensibly with all aspects is important.

Could you review this and give the subcommittee the benefit of your comments?

Ms. CLAYBROOK. Yes. I would like to say that, in setting the fuel economy standards, we did look at the various effects on those various industries; plastics, steel, aluminum, and so on. I will not comment on the emissions one because that is not in my area of responsibility.

When we reevaluated the 1981 to 1984 standards with the White House and the Commerce Department, we looked at the aluminum issue in some additional level of detail. That was approximately a year and a half after we had set the original standards.

We would be delighted to have the opportunity to comment on that report.

Mr. DINGELL. I think it would be helpful. When you make an automobile out of aluminum you have the differential between what the energy input in the automobile is from steel and that input happens to be not infrequently almost entirely coal as opposed to aluminum which may be made from natural gas or petroleum or it may be hydro.

You have a different energy balance which goes in and the benefits may not be all that good to us.

Ms. CLAYBROOK. We understand that. We did take a look at it. I would also comment we looked at it in a gross overall way as what an individual manufacturer chooses to do under the circumstances, and that is obviously going to be governed by the market prices of those various materials. We cannot always predict precisely what some manufacturer's evaluation will be.

We certainly did look at it as we felt we should.

Mr. DINGELL. I think it is something that has to be reviewed. If for example you manufacture a plastic car it is not going to use much gasoline. The initial manufacture may use a quarter of a ton of petroleum in the manufacture of the petroleum based plastic.

Ms. CLAYBROOK. We do understand that and agree.

Mr. DINGELL. One of the things which troubles me is I think infrequently in our enthusiasm to do good we make some rather grave errors in terms of moving toward something that looks good but has consequences widely at variance with what it was we originally intended.

I do hope as you review this you will consider carefully the need for the most balanced careful regulation in this area.

By statute I am told an annual report from the Department is required on fuel efficiency standards and that was due in January. I am told it was received the other day.

Ms. CLAYBROOK. That is correct. It was received today.

Mr. DINGELL. Was that late in coming?

Ms. CLAYBROOK. It was late in coming.

Mr. DINGELL. Was the information in that annual report embodied in the activities that have taken place with regard to the light trucks and vans standards?

Ms. CLAYBROOK. This report is a report due in January of 1980. It is our assessment of the last year of what has gone on. The statute requires an annual report of our activities of the prior year. It dealt primarily with 1979 activities.

It dealt a little bit with the light truck area. The petition that Chrysler filed in 1979 for a reduction of the 1981 standard was dealt with because that was handled by the agency in 1979.

The light truck fuel economy standards for 1982, which we just issued, really stand on their own and are not deeply covered by the annual report because we received the comments from the manufacturers after the beginning of the new year.

Mr. **Dingell.** I spent some time in the Western United States last year and in my discussion with the people I dealt with who did a great deal of pick-up truck driving and driving of offroad vehicles the comment was not infrequently made to me that instead of buying, let's say, a one-quarter ton or one-half ton truck because of Federal standards and because of the inability of the truck to perform as it used to in what they regard as better days, that they are now buying one-half ton and three-quarter ton trucks.

The consequence, they told me, was that they are using more gasoline to do less work.

Have you evaluated that possibility in any fashion at your agency?

Ms. **Claybrook.** Yes. There has been an increase in the sale of trucks in the category of in excess of 8,500 pounds. The EPA standards and the DOT standards cover trucks at 8,500 pounds and below. The market has increased by a small percentage in sales in the last 2 years of trucks and vans in the above 8,500 pound class.

I would also comment that in the last year the sales of the imported, smaller light trucks have increased dramatically while the sale of the heavier, less fuel efficient domestic ones have gone down considerably.

What we are looking at here is a marketplace that, in the past, has had a fairly narrow variety of vehicles available to meet the market demand. What the manufacturers are really going to have to have is a wider variety, that is some smaller vehicles that are going to satisfy the user who is particularly concerned about fuel economy and has less of a need for the heavy truck capability or the heavier light truck capability, while being able at the same time to manufacture some of the larger vehicles.

Another issue is the engines in these vehicles. The companies that are going to achieve the best fuel economy are the ones that are going to be able to manufacture engines having a good fuel economy payoff for the performance or acceleration and pulling power of that engine.

Mr. **Dingell.** That also would be heavy orientation toward diesel, would it not?

Ms. **Claybrook.** Yes.

Mr. **Dingell.** You would get a powerful fuel efficient engine if we can go to diesels.

Ms. **Claybrook.** I think that is true. One of the recommendations of the Department over the last year has been that we try and put some Federal dollars and energy into looking at control technology for diesels. This would give us some better sense of the ability to correct the diesel emissions problem so we could have diesels available which do not conflict with the work the EPA has been doing.

Mr. **Dingell.** How about looking at the basis upon which EPA is acting and to ascertain whether or not their standards are in point of fact bottomed on real peril to the public health or whether they are bottomed on, let's say, some imagined peril or something on which there is no sound and statistical basis to rely?

Ms. **Claybrook.** The Department of Energy is doing quite a bit of work on health effects. The Department of Energy is doing additional work beyond EPA. In addition, the National Academy of Sciences has been asked and funded by three agencies—EPA, DOE, and DOT—to do a study of diesels looking at the health effects as well as other aspects of diesel control technology and capability. There is also a three-agency study in which DOT, DOE, and EPA are trying to assess their own programs in relation to diesels to have a balancing of all the factors which these agencies represent.

Our interest is based upon our statutory mandate to try and see what kind of capability there can be in the future to achieve fuel economy standards.

We have never counted diesels as one of those technologies that the manufacturers would use in calculating where our standards should be set. In this regard, our standards have been set at a level lower than what the manufacturers can achieve to the extent they are using diesels.

We have taken that posture because we thought it was important for the health effects work and the particulate work to have a chance to mature before we started pushing that technology. It is our belief that diesels are a very promising technology. The area where there needs to be some focus from our perspective is how much can diesels be cleaned up to eliminate whatever disadvantages might result from their use.

Mr. DINGELL. Thank you very much.

Mr. SHARP. If I could continue the questions, when do you expect to have completed the National Academy of Sciences study and when do you expect to have completed your interagency study on the diesels?

Ms. CLAYBROOK. The National Academy of Sciences study is due to be completed in December of 1980. The three-agency report is at least several months off, and based on my knowledge of clearance by three different agencies, the final document will probably require more time than that.

Mr. SHARP. What you are telling me is by the end of this year we should have a fairly solid basis on which to know where we are going or are we going to simply have a list of all the unknowns that come out of the National Academy of Sciences study or your study and therefore while we know a little bit more about what we do not know, we really are not in the position to make any judgments?

Ms. CLAYBROOK. The National Academy of Sciences is not doing any original research. They are pulling together everything we know, trying to make some judgments and assessments regarding the risks and benefits of increased use of diesels in light duty vehicles. They are not going to come up with any unique and original findings that are not already known in terms of basic research.

Mr. SHARP. Are you telling me we can probably get some kind of solid recommendation that either we should not proceed with diesels or we should proceed cautiously or we should move ahead and not be too worried? Are we going to get back that we need another $50 million study in order we find out whether or not we should go with diesels?

Ms. CLAYBROOK. It is not going to be a dispositive study, Mr. Sharp. What it is going to try and do is organize what needs yet to be done and to say what level of knowledge we have today and, therefore, what policies may be designed with regard to what we know today.

I think you are going to get a little bit of everything; some recommendations probably for more research and some statements of where we can go now based on what we know, and some precautionary judgments.

Mr. SHARP. Thank you very much. As you know we will probably have more questions as we proceed and get into markup on some of these issues. We will be looking at the report we have just received. We thank you for your testimony.

Mr. Finnegan?

Mr. FINNEGAN. Ms. Claybrook, in your testimony and also in the report on the bills themselves you indicated that on the connection with the third amendment that the amendment is designed to facilitate compliance to meet with required levels during a given year to unforeseen circumstances and it is not intended either that the manufacturers other than those that are financially troubled would be able to use the extended credit.

There is nothing in the amendment that really states that and I wondered what the basis was for that conclusion?

Ms. CLAYBROOK. It is the position of the Department that a maximum manipulation of the 3-year carryback/carryforward of credits and penalties could result in potentially less fuel economy being achieved then if the carryback and carryforward of credits were used as the manufacturers desired them initially to be used and as it was our presumption they would be used.

I remember talking with Mr. Caldwell of Ford Motor Co. about an indication that the manufacturers should have some flexibility in making sure, if they miss the standard by a small amount, that they do not find themselves in an adverse posture with regard to the standards as well as their feeling that there were going to be some significant changes in our marketplace. The AMC/Renault arrangement is one good example of where you should have that kind of built-in statutory flexibility.

The manufacturers at the end of 1980 will have significant credits and some will have to make little or no fuel economy improvements for 1982. They could just use those accumulated credits.

We are presuming they do not intend to do that and that is not their desire. I would certainly hope the subcommittee would look on the 3-year carryback/carryforward credit provision as one which would be used by the manufacturers in an exceptional way rather than as a routine planning operation.

Mr. FINNEGAN. The proposal is to eliminate the determination of unlawful conduct characterization. Having looked at the legislation as you propose it and also as introduced, does that really take place because it does require or it appears to require at least a finding of a violation but you are deeming it not unlawful conduct. There is a determination at least by the Department that there has been a violation.

Are we getting into semantics?

Ms. CLAYBROOK. If you do not have a determination then you have no basis for calculating your credits backward and forward. We have to make a calculation each year as to what the manufacturers have achieved. Obviously, when you calculate what they have achieved you look at the end of the model year at their sales and at their fleetwide average fuel economy you know whether or not they have any credits or penalties.

You would do that each year and then you would allow a 3-year period backward and forward, which I guess is really a total of 7 years when you add it all up, before you would make any determination of whether or not they had violated the law.

Mr. **FINNEGAN**. That is the point I am making. You consider the credits before you make the determination of a violation? The way the legislation seems to read is you are going to determine a violation and then consider the credits. It seems to me there is a question of whether you really are achieving one of the objectives that the industry also wants which is not to be declared an unlawful conduct.

Ms. **CLAYBROOK**. Perhaps we are talking about a matter of semantics. What you need to do at the end of each model year is to determine whether or not the fleetwide averge for the manufacture in that year met the standards or exceeded the standards or did not meet the standards. That determination should be made each model year. Then you have a basis for making your mathematical calculations on the credits and penalties each year after you have made that first determination.

You have to do that. If you are not meeting the standards, then I do not know what word you want to use, in violation of standards or not complying with the standards, they have not met the standards. Somehow, though, you have to make that determination each year.

Mr. **FINNEGAN**. Thank you.

Mr. **SHARP**. Thank you, Ms. Claybrook.

We will now hear from Mr. Howard Paster, representing the United Auto Workers.

STATEMENT OF HOWARD PASTER, LEGISLATIVE DIRECTOR, UNITED AUTO WORKERS

Mr. **PASTER**. Thank you, Mr. Chairman.

There are four issues before the subcommittee that we would like to address ourselves to, the first of which is the 3-year carryforward/carryback question.

This proposal, originally advanced by the Department of Transportation last year, which is embodied in legislation you have introduced would permit the automobile manufacturers to use credits earned when they exceed the CAFE standards for up to 3 years.

As you know, present law provides that allowance for up to 1 year. We think your bill H.R. 5140 and the administration proposal are constructive. We think they provide an improvement in the administration of the system and we support them.

The purpose of the CAFE standards when they were established were to achieve overall fuel savings. To the extent that a manufacturer exceeds the standards in a given model year a permanent improvement in fuel efficiency for the entire fleet is realized and allowing use of the credit received for up to 3 years will not diminish realization of the composite fuel savings anticipated under the CAFE program.

The recommendation provides some flexibility in the regulatory program without an energy penalty and we urge its adoption.

We also support, in relation to the counsel's earlier question, a related provision to change the definition of "unlawful conduct" so as to insure that manufacturers who avail themselves of the 3 year carryforward/carryback do not encounter unjustified legal risk.

This is a necessary change to accompany enactment of the 3-year provision and we support the modification of the law as proposed in H.R. 5140.

Regarding the domestic production by foreign manufacturers, this issue is also addressed in the administration recommendation. The purpose of the proposed change in the law is to permit foreign manufacturers who establish domestic auto production facilities to maintain a single CAFE combining their domestic and foreign production.

When the original law was passed the UAW supported a provision which gradually eliminated the right of domestic manufacturers to count captive imports in their CAFE's. The purpose was to encourage domestic production of relatively fuel efficient autos.

As the situation has developed since passage of the law Volkswagen has begun U.S. manufacture and with the support of many in the Congress we are insisting that other foreign auto companies follow VW's lead.

In order to encourage these foreign concerns to not only locate in the United States but also to achieve a high level of U.S. content in their finished products, it is necessary for them to have a single CAFE combining relatively efficient high volume models produced in the United States with less efficient lower volume models produced abroad.

The fact is that this proposed change in the law will serve precisely the same goal as the original act, that is to encourage domestic manufacture with U.S. content of at least 75 percent of relatively fuel efficient autos.

In the case of foreign companies, it is necessary to achieve this goal with the proposed amendment. We are convinced this legislation will increase U.S. employment while increasing the availability of relatively fuel efficient autos built by U.S. workers with U.S. produced parts, steel, rubber, et cetera.

H.R. 6908, introduced by Representative Ashley, has as its purpose the same objective as the item immediately above, domestic production of relatively fuel efficient autos but proposes to achieve this goal in a manner which will solve an unique problem confronted by American Motors in its new relationship with Renault.

The UAW supports H.R. 6908 because we believe it will not only keep American Motors' domestic auto production lines open in the early 1980's, but provide a necessary transition to the domestic production with domestic parts and supplies of Renaults now made in France and sold in the United States.

To achieve the combined objectives of keeping AMC in the automobile business and encouraging U.S. production of Renaults, it is necessary to provide a short term modification in the content rules while combining the AMC and Renault CAFE's. Within a reasonable time period the Renault production will realize the 75 percent

U.S. content required and the combined AMC-Renault CAFE will then conform with present law.

The Ashley bill may justly be viewed as a bill to enhance domestic auto production.

On the issue of low-volume manufacturers which Congressman Wolpe addressed, this also was raised by the administration last year and provides an exclusion from the CAFE rules for manufacturers whose world wide sales are less than 10,000 vehicles a year. We have no objection to this provision. The number of cars produced by the affected companies is too small to be of concern.

Mr. Chairman, on a related matter, the UAW strongly feels that the inclusion in CAFE calculations of police cars and ambulances is an oversight that should be corrected.

First, EPCA's inclusion of police cars and ambulances in CAFE is inconsistent with subsequent U.S. Government policy which benefited from additional consideration of the issue.

The so-called gas guzzler tax, for example, excludes from the tax "any vehicle sold for use and used * * * as an ambulance * * * or * * * for police or other law enforcement purposes * * *"

Similarly Executive Order 12003 of July 20, 1977, empowers the GSA administrator to exempt automobiles "designed to be used in law enforcement work or emergency rescue work" from rules barring executive agencies from purchasing cars that do not exceed EPCA standards for the year of purchase.

Second, for a number of reasons Chrysler Corp.'s sales of police cars far exceed that company's overall share of the U.S. new car market. As a result, inclusion of these vehicles in the CAFE hurts Chrysler disproportionately.

Mr. Chairman, I will be happy to take any questions you may have.

Mr. SHARP. Thank you, Mr. Paster, for your testimony.

Mr. Chairman?

Mr. DINGELL. I just wanted to say I am delighted to welcome you to the subcommittee and to say your friendship to this subcommittee has been manifested in splendid fashion in recent days and to indicate this subcommittee is certainly going to try to be helpful in your undertakings. We look forward to working with you, as I know you do with us, in connection with moving this bill rapidly forward under your very able leadership.

Mr. PASTER. Thank you, Mr. Chairman.

Mr. SHARP. One of the questions we had in the earlier discussion with Ms. Claybrook which is relevant to what we are doing here today is concerning this whole question of imports. Obviously one of the things we hope to achieve with the CAFE standards which I think is clearly an industry desire is to make us more competitive on an issue that is becoming increasingly important to the American consumers and that is the fuel economy.

One of the things we find disturbing is, even though we are making fuel economy improvements, that is the savings on the balance of payments of $1 billion. Our concern is how much on the balance of payments are we losing in terms of the imported cars. We are a little concerned about trading imported oil and making some progress there.

I wonder if you could briefly address that.

Mr. **Paster**. Last year our net auto trade deficit with Japan was $9 billion. I dare say that, were there a $9 billion increase in our trade deficit with the OPEC nations, there would be a hue and cry and anguish up here on the Hill.

I think there is a reluctance to come to grips in some quarters with the economic consequences of permitting the continued outflow of dollars in those huge amounts. It was $9 billion last year and we can reasonably expect with the present levels of imports that we will have a net auto trade deficit with Japan in 1980 of more than $10 billion.

If this country and the administration want to devise antiinflation strategies to protect the dollar, including things like raising the price of gasoline which we frankly do not agree with, it is remarkable they do not try to address the question of what happens to inflation and the value of the dollar if we permit that tremendous continued outflow of dollars for Japanese autos.

We think it is an important issue for the quarter of a million UAW workers who are unemployed, land an important issue for national economic policy. I think it is an issue we have been remiss in addressing in terms of the inflation problem, in terms of the value of the dollar, and in terms of our bilateral relations with the Japanese.

Mr. **Sharp**. Let me ask you about one of the complaints you hear among some people as to perhaps the workmanship on the American automobile is not as great as that on the foreign product and perhaps that is part of why the Japanese and Europeans have been so successful in their sales here.

What would be your response to that?

Mr. **Paster**. I think there have been instances in which the quality of the U.S. product has been disappointing. We cannot dismiss that concern out of hand. We also know full well U.S. workers are capable of producing as fine a product as workers anywhere else. Indeed we have been encouraged by recent reports which suggest they are capable of doing better than is done elsewhere.

We have reports now from Volkswagen, which has been assembling autos in this country for more than a year, that the quality of the product that is coming off the assembly line in Westmoreland, Pa., is equal to or better than that in Volkswagen's own plants in Germany.

Honda is building motorcycles in Marysville, Ohio. The chairman of Honda reported to our president that the quality of work at the motorcycle plant in Ohio is greater than either the quality of work at the Honda motorcycle plant in Japan or the plant they have in Western Europe.

I would think the issue of the quality of U.S. products needs to be addressed. I think it is a responsibility which is with the workers and I think it is a responsibility that rests with management.

The standards have to be high and the workers have to have a reason to want to meet those standards. They have to believe there is something to be achieved in terms of personal award for doing so.

We have tried in a number of cases experiments under the general theme of quality of work life where we have tried to work with management to give the worker a greater incentive to achieve the gratification which comes from producing the best possible product and we have had some successes.

I think the myth of the overall advantage in quality which rests with Japanese or European cars is one we can debunk and I think we can do it by producing equally good cars in this country.

Mr. **Sharp.** I appreciate that. What I wanted to get on the record is the new Volkswagen plant where in fact it appears our workers are performing and it certainly can be done and is being done. There are other positive aspects to this.

There are news articles reporting that Europeans are now concerned that American manufacturers are moving ahead rapidly in technological developments that may leave the European manufacturer behind and suggesting over the long haul that our position is going to be a far superior one than it is today.

Many of us are deeply concerned about this trend of last year with the increase in Japanese imports and the sense if that does not rectify itself we must take some action to guarantee we protect the American wealth and the American industrial base that is associated with automobiles, those investments and what not.

Many of us feel there is a definite imbalance, not just in the figures but in the trade practices, between Japan and the United States, and we feel very strongly the Japanese should be looking to do as Volkswagen has done, so if you are going to sell them here in those kind of quantities, build them here.

Mr. **Paster.** The chairman is absolutely correct. The Japanese manufacturers long ago passed the point where their U.S. sales would have made it economical for them to invest in the United States. Honda has made that commitment. They are going to build automobiles in the United States and they are going to source parts in the United States. They are going to have their own subsidiary plants in the United States, and we welcome them here.

Toyota and Nissan, which produces the Datsun automobile, have the largest imported share of the U.S. market and one of them has been selling more cars than Chrysler in the United States lately.

They are now involved in capital expenditures to increase their capacity in Japan targeted solely for the export market. Here they are at a point where the Japanese alone have 22 percent of the U.S. market in the recent months and they are now in increasing capacity—engaging in substantial capital commitments—which could just as easily and frankly more logically should be placed in the U.S.

It is not as though they have unused capacity and they are trying to put that into the U.S. market. They are aggressively targeting the U.S. market for greater penetration and putting the investment and the capital expenditure in Japan. It is a policy which we think our Government has to speak to the Japanese about and which it cannot tolerate.

Mr. **Sharp.** I think many of us would prefer in an ideal world not to have us engaged in restrictive practices in trade or interferences with capital investments and movements of capital and labor. We cannot be unmindful of what is clearly happening. We cannot allow this country to just become one of the service industries and not have a stronger base than that.

I hope others understand that issue is being raised very seriously here on Capitol Hill and elsewhere.

Mr. PASTER. The chairman is right. We do not propose to exclude the foreign manufacturers from the U.S. market. There are those in Congress who think we are foolish in this respect. We have been told as much. They say simply set a fixed percentage of the U.S. market and pass a law and limit them to 10 percent of whatever the market is in a given model year.

We have rejected that notion because we think it is healthy for the U.S. economy and the U.S. auto industry to have price competition, technological competition, quality competition.

We think that would actually be beneficial to this economy. Rather than simply excluding them from the market, we are saying we do not mind your presence in our market but if you are going to exploit our market put Americans to work, buy from American suppliers and spend some of your money in this country.

Mr. SHARP. I appreciate the position your union is taking. It is a broader view and a longer term view than some groups in our society sometimes take. As you indicated they would very quickly shut the whole thing off.

As you know your union and we on Capitol Hill are going to be increasingly driven to that position of having to say at some point we draw the line and the unfortunate consequences that may fall from that will have to be taken because we simply cannot stand to lose these kinds of jobs and this kind of economic activity and to allow our international competitive position to be zapped away.

Mr. PASTER. Exactly. We will press for legislation if the problem is not solved in a very short time.

Mr. SHARP. We will be having American auto manufacturers testifying on Tuesday. I think there are some very positive developments coming in new lines of cars and not just to meet these fuel efficiency standards but to meet the market demands of the American people. We are very hopeful those kind of things will pay off in a very important way for our economy and for the jobs in this industry.

We simply are not going to be blind to what is happening.

Thank you very much, Mr. Paster. We appreciate your testimony.

The subcommittee will continue hearings on the various proposals for alterations in the CAFE standards at the call of the Chair.

The subcommittee is adjourned.

[Whereupon, the subcommittee was adjourned at 11:45 a.m. to reconvene at the call of the Chair.]

AUTOMOTIVE AVERAGE FUEL ECONOMY STANDARDS

TUESDAY, APRIL 15, 1980

House of Representatives,
Subcommittee on Energy and Power,
Committee on Interstate and Foreign Commerce,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2123, Rayburn House Office Building, Hon. John D. Dingell, chairman, presiding.

Mr. Dingell. The subcommittee will come to order.

This is a continuation of the hearing very ably chaired by my good friend and colleague, a senior member of this subcommittee, Mr. Sharp, of Indiana, on a series of bills—H.R. 5140, H.R. 6908, H.R. 5944 and related bills—including a number of measures introduced by our friend and colleague, Mr. Sharp.

The Chair observes some of these bills have been referred exclusively to this subcommittee, some jointly with other subcommittees.

The Chair does advise that it is the intention of this subcommittee to move rapidly to consideration and processing of the legislation before it, because I am clearly aware that the closing days of the session are not far distant. The number of workdays available for Congress are relatively few, and the need to correct some of the problems that have arisen in the administration's legislation originally produced by this committee in the Energy Policy Conservation Act of 1975 are becoming quite clear.

The Chair announces that we will have two panels today on the general subject of corporate automobile fuel efficiency. The first will be Ms. Helen O. Petrauskas, assistant director, emissions and fuel economy certification, Ford Motor Co.; Dr. David S. Potter, vice president of General Motors Corp.; and Mr. Chris Kennedy, director of Federal Government affairs, Chrysler Corp.

Ladies and gentlemen, we are happy to welcome you to the committee table. If you will, for the assistance of our reporter, identify yourselves for purposes of the record, we will be most pleased to receive your statements. Ms. Petrauskas, if you will identify yourself first for the record, and then Mr. Kennedy and Mr. Potter.

Ms. Petrauskas. I am Helen Petrauskas, assistant director of the automobile emissions and fuel economy certification office, Ford Motor Co.

Mr. Kennedy. Christopher Kennedy, director of Federal Government affairs, Chrysler Corp.

Mr. Potter. David Potter, vice president in charge of the Public Affairs Group, General Motors Corp.

Mr. DINGELL. Ladies and gentlemen, you are welcome. If you will now proceed, starting with Ms. Petrauskas.

STATEMENTS OF HELEN O. PETRAUSKAS, ASSISTANT DIRECTOR, AUTOMOBILE EMISSIONS AND FUEL ECONOMY OFFICE, FORD MOTOR CO.; CHRISTOPHER M. KENNEDY, DIRECTOR OF FEDERAL GOVERNMENT AFFAIRS, CHRYSLER CORP.; AND DAVID S. POTTER, VICE PRESIDENT, PUBLIC AFFAIRS GROUP, GENERAL MOTORS CORP.

Ms. PETRAUSKAS. Mr. Chairman, we welcome this opportunity to comment on proposed changes to the Energy Policy and Conservation Act.

Partly as a result of the EPCA program, Ford's fleet average fuel economy has improved over 50 percent since 1974. Because of these fuel economy increases, together with the rising price and uncertain availability of gasoline, many petroleum industry analysts think that 1978 may prove to be the year in which U.S. motor fuel consumption peaked.

Last year Americans used 5 percent less gasoline than they did the year before, making the United States the only major oil-consuming nation to use less in 1979 than in 1978. So far this year our consumption appears to be running 10 percent lower than 1978.

Much of the reduced gasoline consumption is a result of steeply rising prices, as well as availability problems; but there is no question that EPCA may have helped somewhat by pushing manufacturers and consumers more quickly toward major project changes at a time when consumers were not convinced the energy crisis was real and following years of artificially low gasoline prices.

The situation has changed, however. The market is presently running ahead of EPCA and there is every indication that it will continue pushing as fast as our engineering and financial resources will allow. Yet market pressures still afford manufacturers the ability to pick and choose among product programs and timing, an ability not present under EPCA's inflexibile year-by-year standards.

Because the law requires us to meet fixed, predetermined CAFE levels every year, we have sometimes found ourselves with no choice but to do things that make little strategic or economic sense to achieve the last few tenths of a mile per gallon of required fuel-economy improvement.

For example, in some instances we have had to make large investments to make minor changes in componentry when later redesign and new engines and transmissions would have yielded improvements at far less cost.

We also must use expensive lightweight materials, such as aluminum, in some future applications where they make no economic sense for us or for consumers merely in order to give our EPCA compliance program an adequate margin of safety.

The rigidity of the annual increases also strains our financial resources. The auto business is highly cyclical, as a result of which the availability of funds to finance new product programs can vary substantially from year to year. In today's automotive sales recession, for example, the prudent response would be to defer spending and cut product programs.

But our ability to do this is presently severely constrained by the need to develop products for ever-increasing standards.

We think the 3-year carry-forward/carry-back proposal, introduced by Representative Sharp and cosponsored by many members of this subcommittee would go a long way toward restoring the flexibility needed to meet the abruptly changing marketplace.

Under the carry-forward/carry-back amendment, a manufacturer would be permitted to utilize credits in excess of the standard within the following 3 years. Or it might make sense for a manufacturer who faced inadvertent shortfalls due to economic, marketing, or technical problems, to plan to overachieve within the following 3-year period.

Ford supports the change proposed by DOT that would allow the use of carry-back only if a manufacturer submitted to DOT a plan showing how the manufacturer proposes to earn sufficient credits within a 3-year period. We think that a 3-year carry-forward/carry-back, with the important statutory assurance that these credits could be utilized without breaking the law, would permit manufacturers to better optimize engineering and financial resources to meet the law and the marketplace.

Not only would the amendment benefit consumers and manufacturers, but it would also have little or no impact on national fuel savings.

If the market continues as at present to place exceptional emphasis on fuel economy, every manufacturer will be forced by competition to offer as many miles per gallon as its financial and technical resources will permit, in excess of the standards, if possible. The incentive to overachieve, to guard against future problems, could in fact, yield fuel savings benefits.

On the other hand, even if the market should swing temporarily away from today's very strong demand for fuel-efficient vehicles, there would still be incentive for manufacturers to exceed the standard, if possible, in order to bank fuel-economy credits as a cushion against future market reversals or unforeseen technical problems. As things now stand, EPCA provides no incentive for a manufacturer to exceed the standards when the market is running behind them.

Carry-forward/carry-back is even more essential in the case of trucks—where product cycles run as long as 7 years and large fuel economy improvement gains come only with the introduction of major product changes, given that the truck's functional capability must remain constant.

For these reasons, then, we hope that the subcommittee will act promptly to recommend the carry-forward/carry-back extension for early House action.

The carry-forward/carry-back concept has been supported by all domestic auto manufacturers, by DOT—which first proposed an extension of carryover credits in its January 1979, report to Congress and later transmitted draft legislation to the Senate, and by more than 80 Members of Congress from 23 States and both parties, and by the UAW.

Several other EPCA amendments are under consideration by the Congress, and two of these deserve special comment: First, an amendment allowing producers establishing U.S. production after 1975 to average their imported and domestic CAFE's; and second, an amendment allowing a company to count 150,000 imports in its CAFE under certain highly restrictive circumstances.

We oppose the so-called Volkswagen amendment which would exempt VW and other manufacturers starting U.S. production after 1975 from the general requirement that a manufacturer's domestically produced and imported fleet must each meet fuel economy standards.

We have continually opposed any special treatment of individual manufacturers under EPCA. The requirements of EPCA are such an integral part of a manufacturer's strategic planning that amendments designed to accommodate a special class of manufacturer unavoidably confer significant competitive advantages on those manufacturers and competitive disadvantages on others.

This raises serious questions of fairness. For example, the reason Volkswagen has asked for this change is presumably that at some point the cars it imports will fall below the EPCA standard. If the VW amendment is enacted, the effect will be to allow VW to continue to produce and import less fuel-efficient cars than would otherwise be permitted.

Ford is on record supporting investment and production in the United States by foreign manufacturers, but encouragement to invest here should be created through negotiation or legislation directed specifically at the goal, not through exemptions prejudicial to American-owned companies and built into a fuel economy law.

The other amendment is a modification of legislation introduced on behalf of American Motors. If our understanding of this complex proposal is correct, any manufacturer, beginning in model year 1981, could include up to 150,000 passenger cars with less than 75 percent local content in its domestic CAFE if the cars "have never previously been domestically manufactured"—that is, whose local content had never been 75 percent or more—have at least 50 percent United States-Canadian content and will be brought up to 75 percent United States-Canadian content by the end of the third model year after the model year in which DOT accepts the manufacturer's plan.

Thus, in each of 3 consecutive model years any manufacturer that meets these tests could include in its domestic CAFE up to 150,000 passenger autos it otherwise would be unable to include.

In contrast to the VW proposal, this amendment would not discriminate against manufacturers producing in the United States before 1975, although the provisions' restrictive criteria mean that as a practical matter the proposal seems to us unlikely to be of much benefit to manufacturers other than AMC and Renault.

It also is time limited in its special treatment versus the VW proposal, which has no expiration date. For these reasons, we believe this amendment is less prejudicial and unfair and therefore less objectionable to us.

In summary, we support the carry-forward/carry-back provision as the most appropriate change to EPCA because it would apply to all manufacturers without arbitrarily discriminating among them and provides a needed safeguard for the future.

With the Japanese market share running 22 percent and gasoline prices almost double what they were a year or so ago, there is every incentive for manufacturers to push as quickly as possible for major fuel economy gains. Nevertheless, the flexibility provided by this provision may prove to be critical to carrying out the purposes of EPCA in the future without causing major adverse consequences.

Mr. **Dingell**. Ms. Petrauskas, we thank you for a very helpful statement for which we commend you.

Mr. Kennedy, we recognize you.

STATEMENT OF CHRISTOPHER M. KENNEDY

Mr. **Kennedy**. Thank you very much, Mr. Chairman.

We now have 5 years' experience with fuel economy standards and we are planning for the next 5. We have learned a lot since the act was passed, and as a result many people now recognize the need for some adjustments in the rules, particularly for the smaller companies.

I would like to comment briefly on the proposals for change before this subcommittee and then tell the subcommittee about our problems with the truck fuel economy standards for 1982.

One proposal would exempt manufacturers who produce fewer than 10,000 vehicles a year from fuel economy standards. Since there are relatively few companies in this category, the effect on fuel economy would be negligible, and we support this amendment.

A second proposal would allow manufacturers to earn credits in years when they exceed the mileage standards and apply these credits in years when they fall short over a 3-year period. This is simply an extension of the current 1-year carry-forward/carry-back provision. It would give manufacturers time to compensate for developments beyond their control that could cause them to fall short of the standard in a given year, like sudden changes in market demand, problems with suppliers, or technology that does not work out as we had expected.

It is essentially a change in accounting procedures; it would have no impact on overall fuel consumption and yet would help us continue our orderly progress toward 27.5 miles per gallon in 1985. We strongly endorse this amendment.

Failure to meet the standard is now a violation of the law. Since a manufacturer could fail to meet the standard in a given year, but use the 3-year carry-forward/carry-back provision to meet the standard, the amendment should make it clear that doing so is not a violation of the law.

A third amendment would permit manufacturers who began production in the United States after 1975 to include both their imports and American-built cars in calculating domestic fleet fuel economy averages.

As written, this amendment would give these manufacturers a permanent competitive advantage over the established U.S. companies. We believe there should be some limitation on this amendment.

A fourth proposal would permit all U.S. manufacturers to include in their fuel economy averages up to 150,000 imported cars, provided these cars have at least 50 percent local content at the start and 75 percent within 4 years.

This change will help U.S. companies plan their investments in North America in a more orderly and efficient manner. It will give them the flexibility to manage their resources in periods like this one, when they have to deal with double-digit inflation, recession, and a seriously depressed automobile market. It would allow American companies to explore cooperative ventures with foreign manufacturers and, most important, make it possible to start production on jointly developed products in the United States.

In general, we support this amendment; however, we propose that the language should be changed from passenger cars to motor vehicles so that the amendment would include trucks. That would give manufacturers the same kind of incentive to expand U.S. truck production as the amendment provides for cars.

Generally speaking, the amendments we are discussing today will make the fuel economy standards more reasonable and workable, helping manufacturers meet the standards at less cost to consumers; they will protect the smallest companies from requirements beyond their limited resources; they will give companies much needed flexibility to meet fuel economy standards at lower cost to customers; and they will protect existing U.S. jobs and help encourage development of new jobs.

We are very pleased to see the Federal Government undertake this kind of review of passenger-car standards. We hope the subcommittee and the regulatory agencies will also take a hard look at truck standards we have to meet for 1982.

The subcommittee should be aware of the special problems that these standards create for Chrysler Corp., problems which are not covered by any of the amendments now before the subcommittee.

The 1982 standards require that two-wheel-drive trucks meet a fleet average of 18 miles per gallon, and four-wheel-drive trucks meet a fleet average of 16 miles per gallon.

We had told the Department of Transportation that Chrysler Corp. could not meet standards higher than 17.7 miles per gallon for two-wheel-drive vehicles and 15.3 miles per gallon for four-wheel-drive vehicles.

We did not try to bluff the administration in order to negotiate more favorable standards. We have nothing to hide. Our operating plan, our financing plans, and our product plans have all been scrutinized by the Congress, the administration, and independent consultants. They know that it is not likely that we can meet the two-wheel-drive standard, and the four-wheel-drive standard is far beyond our reach. There is no way we can develop a new, small, four-wheel-drive truck by 1982.

We have two choices as the regulations now stand: We can stop building some or all four-wheel-drive trucks, or else we can keep on building them, violate the law and be subject to millions of dollars in fines.

NHTSA has suggested that the fines for four-wheel-drive vehicles would be only about $2 million, and probably would be waived by the Federal Trade Commission. We do not think the fine would be waived. Even if it were, the adverse publicity would be very damaging and we do not want to be forced to violate the law.

If the standards saved great amounts of energy, they might make sense; but we believe the standard will have no effect on gasoline consumption over the standards we proposed.

We are moving ahead as fast as we can with programs to improve our truck fuel economy. Chrysler will have new products for 1983; but we do not have the time nor money to bring a new 4x4 to market in 1982. These facts were known to the administration when the standards were set.

We do not know why the administration set the standards at levels which jeopardize the jobs of thousands of workers and lead to substantial fines. We, as a corporation, do not like working in an atmosphere in which we have to make a deliberate decision to violate the law.

There is still a way to bring our truck fleet averages up to the levels set in the 1982 standards. We propose two amendments that would revise the procedures for calculating truck fuel economy and give us the same kind of flexibility that we already have in meeting car standards.

First, we propose an amendment that would allow us to include up to 80,000 imported trucks a year in calculating our fleet average fuel economy for the 1981 and 1982 model years, while we develop our own domestic products. These are not additional imports; we already plan to import and sell these trucks in 1981 and 1982. All this amendment would do is allow us to include these fuel-efficient vehicles in our domestic truck fuel economy calculations; it will not alter our plans to build fuel-efficient trucks in the United States in 1983.

Second, we need an amendment that would allow manufacturers to earn credits for exceeding the standards in one class of trucks—two-wheel-drive vehicles—and apply these credits to the four-wheel-drive class if we fall short in a given year, and vice versa.

These two provisions will help us meet the proposed fuel economy standards for trucks in the next 2 years. They will give us the leadtime we need to develop new lines of fuel-efficient trucks in the 1980's.

Chrysler needs these amendments. We want to keep our truck plants open and we want to meet both the letter and the spirit of the law.

These proposals for corrections to truck standards are based on the same reasoning as the amendments for the car standards that are already before the committee. We urge you to adopt them.

This is the end of my prepared remarks.

Mr. DINGELL. The committee thanks you.

We now recognize David Potter.

STATEMENT OF DAVID S. POTTER

Mr. POTTER. With your permission, we have submitted some material for the record, and I would like to have that included.

Mr. **Dingell**. Without objection, that will be inserted in the record [see p. 173] and we will recognize you for any statement you may choose to give.

Mr. **Potter**. Thank you, Mr. Chairman.

Thank you for the opportunity to present our views on the legislation to amend the automotive fuel economy provisions of the Motor Vehicle Information and Cost Savings Act.

The issues under consideration by the subcommittee include an exemption from the fuel economy program for small manufacturers, the opportunity to include foreign-made cars in corporate average fuel economy under certain conditions, and extending to 3 years the period during which credits for exceeding the standards can be carried forward or back.

As you may know, I testified earlier this year before the Senate Commerce Committee on these same issues, and our views remain essentially unchanged from those expressed earlier.

Briefly stated, GM is opposed to legislation which would provide an advantage to selected competitors in our free-market economy. Treating all competitors in the same industry equally is an integral part of our economic system and, in our view, must be preserved.

The automobile fuel economy program became the law of the land in 1975. Congress judged it to be in the national interest to have a regulatory mechanism in place that would force manufacturers to improve the fuel economy of new cars at a rate faster than consumers would have otherwise wanted.

The rules manufacturers were to operate by, especially with regard to the treatment of foreign-made cars, have been well known for more than 4 years. Prudent manufacturers took, or should have taken, such actions as were necessary to properly arrange their business according to those rules.

Those manufacturers who did not manage their business plans according to those rules are now asking for special treatment to avoid the adverse impact of their actions. In our view, Congress should not change the requirements of the law for some manufacturers to give them a competitive advantage over the other manufacturers.

We find it interesting to note that amid the concern expressed by many about the increased level of foreign-made car sales in the United States, Congress is considering legislation that would make it easier for foreign-made cars to enter this country.

In these particular cases the preferential treatment will not help our balance-of-trade problem. The balance-of-trade outflow for a high fuel economy foreign-made car is considerably greater than the cost of the imported oil it could save. It seems to me this would be working against reducing the balance-of-trade deficit and, of course, would result in fewer jobs in the United States.

While we are opposed to changes that would discriminate against any of the manufacturers, there are changes that can and should be made in the automotive fuel economy program that will apply uniformly to all U.S. and foreign manufacturers and which we believe will improve the program.

The 3-year carry-forward/carry-back provision and the amendment to the unlawful-conduct section introduced by Representative

Sharp are in this category and we will discuss these issues later in our statement.

Attached to my statement for the hearing record I have provided General Motors' responses to the questions posed by the subcommittee in your letter of invitation. [See p. 173.]

With that background in mind, I would like to elaborate on our concerns with the proposals that would provide preferential treatment to certain auto manufacturers.

With the small manufacturers' exemption, those manufacturers who produce a preponderance of large or high performance, low fuel economy cars or trucks would not be required to make any attempt to improve the fuel efficiency of their products or to meet the existing reporting requirements.

It would seem sufficient for NHTSA to continue monitoring the efforts of the small manufacturers to assure they are making reasonable progress within their financial and technical capabilities. Thus, General Motors is opposed to granting small manufacturers a total exemption to the established fuel economy standards. We believe that revision of the current regulation is the proper way to relieve the administrative burden on both NHTSA and the small manufacturers, and therefore, there is no need for additional legislation in this area.

The foreign automobiles' exemption would allow auto manufacturers that began U.S. production after the enactment of EPCA on December 22, 1975, to average U.S. assembled passenger autos with foreign-made cars in their CAFE.

This proposed amendment would not apply equally to all manufacturers. It would give favorable treatment to foreign companies who began U.S. manufacturing after December 1975 and deny the long-time U.S. domestic industry the same opportunity to include foreign-cars in the CAFE. Presently, only one manufacturer would be given this preferential treatment.

Current law allowed U.S. auto manufacturers to include foreign-made cars which they brought into the United States for sale in their passenger car CAFE for model years 1978 and 1979. Beginning with the 1980 model year, U.S. manufacturers must calculate the CAFE of their domestic passenger car fleet separately and may not include such foreign-made cars. This has been the case since the law was enacted, and most companies have developed their fuel economy strategies accordingly.

General Motors is opposed to the foreign automobiles' exemption, which would grant an exemption to a specific category of manufacturers and not to others. To permit some manufacturers to bring in low fuel economy foreign-made vehicles, which could not by themselves meet the standards, undermines this Nation's goals to reduce fuel consumption and improve our balance of trade.

The amendment for foreign-made cars sold by U.S. producers in this country, introduced last November by Representative Ashley, has been proposed as an alternative to the requirements of the law that separate a manufacturer's CAFE for its domestic and foreign-made fleets. This proposed amendment would allow a selected manufacturer to include up to 150,000 foreign-made cars in its domestic passenger car CAFE calculation for model years 1980 through 1986. In order for a manufacturer to be selected it must make fewer than

300,000 passenger cars, be unable to develop its own technology, and need to rely on other manufacturers for technology to meet the fuel economy standards.

It is clear that this amendment currently would apply to only one U.S. manufacturer and is intended to allow Renault, a French government-owned company, to implement its business agreement with AMC. It gives favorable treatment to Renault and AMC and discriminates against all other U.S. manufacturers. It would permit this domestic manufacturer to continue making low fuel economy domestic vehicles and meet the standards only through the sale of foreign-made vehicles. General Motors is opposed to this amendment for reasons of principle, as stated previously, as well as the potential adverse impact on U.S. employment and our balance of trade.

The Senate Commerce Committee modified the corresponding amendment to expand the scope of the provisions. This new version, also recently introduced by Representative Ashley, would allow any U.S. manufacturer a one-time opportunity to begin building a new passenger car in this country with up to half of its content from foreign suppliers during a 3-year grace period before it must meet the 75 percent United States or Canadian content requirement. The provisions also include certain other requirements for submitting an acceptable plan to the Secretary of Transportation that would establish a manufacturer's timetable for meeting the existing content requirements.

It appears that the effect of this new amendment on the Renault and AMC business agreement would be the same as the amendment covering foreign-made cars sold in this country by U.S. producers, previously introduced by Representative Ashley. Even though it would allow other manufacturers similar latitude, the amendment could place some manufacturers at a disadvantage if they had arranged their plans for future products to meet the requirements of the act as it now stands. GM has programs for future products that were formulated with the proper belief that once set, the domestic content provisions would not be suddenly changed. We cannot support a change simply to accommodate the plans of other manufacturers who are hoping the existing law will be modified to further their own interest.

I would like to conclude with remarks concerning the proposal taken up in H.R. 5140 and introduced by Representative Sharp. This is the proposal that would extend the carry-forward/carry-back credit provisions from 1 year to 3 years.

This proposal would change the act so that manufacturers' failure to comply with fuel economy standards should not be considered unlawful conduct if the manufacturer offsets the penalty with a credit earned under the law for exceeding the economy fuel standard.

General Motors supports the provisions of this bill. Increasing the period in which credits may be earned for use against possible penalties will enable manufacturers to benefit from earlier conservation efforts and to better balance future planning. It may also help to reduce the magnitude of the risks manufacturers face in bringing more fuel-efficient passenger cars and light trucks into the market.

These risks include: Technological, where technology does not actually improve fuel economy as much in practice as had been planned; economic, where fuel economy improvements cost more than had been originally planned and thereby reduce the number of improvements that can be made at one time; and marketability, where fuel-efficient improvements, or vehicles, are not accepted in the marketplace to the extent a manufacturer had hoped.

We believe the change in the unlawful conduct provision of the existing law as embodied in H.R. 5140 is necessary to make the extension of the credit provisions meaningful. Conditionally deleting failing to comply with an average fuel economy standard from the unlawful-conduct section of the statute would remove the stigma attached to a violation of the law.

This would then allow a manufacturer to use the 3-year carry-forward/carry-back provision without first having to violate the law.

Finally, the legislative history should include a clear statement that it is the intent of Congress that manufacturers be allowed the maximum flexibility under the carry-forward/carry-back provisions so long as a manufacturer does not eventually incur a penalty which cannot be offset by a credit.

To avoid any possible confusion, the legislative history should also clearly state that accrued credits from the 1978 model year, which can no longer be carried forward under the present 1-year provisions, will be included under the 3-year provision.

General Motors recognizes that the fuel economy program has the potential to impact a vehicle manufacturer seriously. The impact could be especially damaging when the fuel economy standards force a manufacturer to build vehicles that do not respond to the marketplace demand.

General Motors is making every effort to further improve the fuel efficiency of its products. We now forecast GM's passenger car fleet average fuel economy for 1980 will be 21.5 miles per gallon, 1.5 miles per gallon better than the standard of 20 miles per gallon.

We expect consumers will continue to demand fuel economy that surpasses the level of the standards, and we intend to try to meet that demand.

Notwithstanding our expectations, the 3-year carry-forward/carry-back provision and the revised unlawful-conduct provision would give the industry a welcomed measure of flexibility to meet those market demands without otherwise compromising the intent of the existing law.

During 1979 the light-truck business declined and changed even more than did the passenger-car business. We are now trying to determine the future direction of the light truck and van business so that we can develop product plans accordingly.

Concurrently, NHTSA is in the process of establishing light truck fuel economy standards through the 1985 model year. The 3-year carry-forward/carry-back and unlawful-conduct provisions contained in H.R. 5140 could also assist manufacturers in their light-truck planning.

I would like to conclude my remarks by stating our overall concern with the current situation regarding foreign-made vehicles sold in this country.

We have long been liberal traders by conviction and will remain so. We have not asked for special treatment from the U.S. Government and do not intend to. We do think, however, that our Government might take a page from the book of other countries and treat U.S. domestic industries as assets, not adversaries, and at a minimum not actively encourage and support the sales of foreign-made products through regulations and policies which give products produced by foreign companies a competitive advantage.

Mr. Chairman, that concludes our statement. If you have any questions, I will be pleased to respond.

Mr. DINGELL. The committee thanks you.

[Testimony resumes on p. 180.]

[The attachment to Mr. Potter's prepared statement follows:]

GENERAL MOTORS' RESPONSE TO SUBCOMMITTEE QUESTIONS

Question 1: The provisions of H.R. 5140 differ in some respects with Sections 3 and 4 of the DOT's proposal of December 17, 1979. Please identify those differences. What is your understanding of the purpose of Section 3 of the DOT proposal.

While similar to the carryforward/carryback and "unlawful conduct" provisions of H.R. 5140 in many respects, the comparable provisions of the Administration proposal are different in two ways. Section 3 of the Administration proposal attaches an unnecessary condition to the application of the "unlawful conduct" amendment in the carryback situation. Under Section 3, in order for the manufacturer's failure to comply with a standard not to be considered "unlawful" in the carryback case, the manufacturer must satisfy two conditions. The manufacturer must submit a plan to DOT within a few months after the end of the model year in which the noncompliance occurs showing when future offsetting credits will be earned. In addition, the manufacturer must actually earn the credits. While it is not unreasonable for the DOT to be interested in when a manufacturer plans to earn an offsetting credit, the only relevant condition to the determination of whether a manufacturer's conduct is unlawful should be that it in fact earns a credit in the future to offset a penalty. Therefore, we recommend that instead of including a reporting condition in an amendment to the Act, the NHTSA should amend its reporting regulations to require manufacturers to indicate when offsetting credits will be earned.

Question 2(a): Should the carryforward/carryback provisions apply to trucks? If not, why not?

The three-year carryforward/carryback provisions and the change in the "unlawful conduct" provisions should apply to light trucks. During 1979, the light truck business declined and changed even more than did the passenger car business. We are now trying to determine the future direction of the light truck and van business so that we can develop product plans accordingly. Concurrently, NHTSA is in the process of establishing light truck fuel economy standards through the 1985 model year. The three-year carryforward/carryback and "unlawful conduct" provisions contained in H.R. 5140 could also assist manufacturers in their light truck planning.

Question 2(b): What progress is being made in DOT to establish standards for light-duty trucks for model 1982 and thereafter? What problems have been identified relative to any manufacturer achieving any standard being considered? Is legislation needed to reverse any such problem?

A more complete response to this question should be provided by the Department of Transportation which just recently announced 1982 model year fuel economy standards of 18.0 mpg for two-wheel-drive and 16.0 mpg for four-wheel-drive light trucks.

In addition, on March 31, 1980, General Motors responded to an NHTSA Notice of Proposed Rulemaking on 1983-85 light truck fuel economy standards. In that response, GM took issue with some of NHTSA's technological and economic assessments, particularly on (1) the forced mix of new model trucks (2) their position with respect to the impact on fuel economy of more stringent emission standards, and (3) their rationale to possibly give special treatment to some manufacturers and not to others. GM recommended that NHTSA set fuel economy standards at one level that takes into account the capabilities of all manufacturers, appropriately discounted for the uncertainties of the market and general economy.

Question 3: What effect will any of the bills have on the consumption of motor fuels?

General Motors is not able to provide any quantitative information on the changes in fuel consumption that would be expected to occur with enactment of any of the amendments under consideration. However, we can provide the following qualitative observations about the directional shift in fuel consumption we would expect with some of the amendments.

The three-year carryforward/carryback amendment is not expected to have a significant effect upon fuel consumption.

The small manufacturers' exemption would probably result in a small increase in fuel consumption if those manufacturers achieve lower average fuel economy in the future than they would have without the exemption.

The foreign automobiles' exemption would likely result in an increase in fuel consumption because it would allow particular manufacturers to continue to import, without change, lower fuel economy vehicles that would not meet the fuel economy standards without the amendment.

The various amendments covering foreign-made cars sold in this country by U.S. producers also would likely result in increased fuel consumption. This is because each would allow the continued U.S. manufacture of vehicles with fuel economy levels below the fuel economy standards.

Question 4: We understand that police cars and ambulances are included in the CAFE calculations of a manufacturer, but they are excluded from the gas guzzler tax. Also, under Executive Order 12003, the General Services Administration is authorized to exempt certain vehicles used in law enforcement.

(a) Should police vehicles and ambulances be excluded from the CAFE? Please explain.

Police vehicles are usually combinations of suitably modified body and chassis components with high performance powertrains from within the available product mix. Because of their high performance, these vehicles tend to have lower fuel economy than those purchased by consumers. Excluding these vehicles from CAFE calculations would likely increase the manufacturers' fleet average fuel economy slightly.

As fleet average fuel economy increases in future years, the fuel economy of police vehicles will increase also. Thus, while we would have no objection, General Motors sees no compelling reason to exclude police vehicles from a manufacturer's CAFE calculations.

Question 4(b): **If excluded, what provisions should be added to insure that they are as fuel efficient as possible if for no other reason than to insure that such vehicles are economic to operate?**

Even if police vehicles were excluded from a manufacturer's CAFE calculations, GM expects the fuel economy of those vehicles GM builds would continue to improve compared to past models. This is because the vehicles they would be based on would have higher fuel economy and GM believes the various police agencies would demand higher fuel economy in order to minimize increased operating expenses from higher priced fuel.

Question 5 (a): Should the legislation include an exemption for manufacturers of less than 10,000 vehicles from the standards? Why?

General Motors is opposed to granting small manufacturers a total exemption to the established fuel economy standards. We believe that revision of the current regulation is the proper way to relieve the administrative burden on both NHTSA and the small manufacturers, and therefore, there is no need for additional legislation in this area.

It would seem sufficient for NHTSA to continue monitoring the efforts of the small manufacturers to assure they are making reasonable progress within their financial and technical capabilities.

Question 5 (b): Should this exemption be applicable to light trucks? Why?

General Motors does not believe the small manufacturers' exemption should be applicable to manufacturers of passenger cars or light trucks.

Question 5 (c): Should the exemption be for just a limited time, but with the assurance that such vehicles will ultimately have to comply with the standards?

General Motors does not support a total exemption to the fuel economy standards for small manufacturers for any length of time.

Question 6: Is it your understanding that section 2 of H.R. 5140, which amends section 507 of the Motor Vehicle Information and Cost Savings Act, clearly provides that reliance on the carryback/carryforward provisions do not require the manufacturer to violate the law before receiving relief or to require DOT to make a finding of a violation prior to granting such relief? Please explain.

General Motors believes the change in the "unlawful conduct" provision of the existing law as embodied in Section 2 of H.R. 5140 is necessary to make the extension of the credit provisions meaningful. Conditionally deleting failing to comply with an average fuel economy standard from the "unlawful conduct" section of the statute would remove the stigma attached to a violation of the law. This would then allow a manufacturer to use the three-year carryforward/carryback provision without first having to violate the law.

Under Section 2 of H.R. 5140, the manufacturer does not violate the law, i.e. commit an unlawful act under Section 507, until he fails to comply with an average fuel economy standard and fails to offset the penalty with a credit. Thus, a violation of the law is not a condition precedent to the application of the carryforward/carryback provisions. However, since a penalty must be assessed under Section 508(a)(2) of the Act before a credit can be applied, the DOT must determine a manufacturer has failed to comply with an average fuel economy standard, and assess such penalty, before the carryforward/carryback provisions apply. But, unlike the current law, if credits exist to offset the penalty or a credit is earned in the next three years, the manufacturer's failure to comply is not considered "unlawful".

Question 7: H.R. 5944 amends Section 503 of the Act by adding to paragraph (2) of Section 503(b) a new subparagraph (E)(ii) which uses the term "reasonably and economically practicable technology." What is your understanding of this term?

General Motors is not providing a response to this question since this amendment would not apply to GM.

Question 8: Under the revised Section 503 when would a manufacturer have to submit an application? How long would it take to consider it? What procedures would be followed in considering it?

General Motors is not able to predict any responses to these questions since it would not be eligible to the special treatment afforded under this amendment.

Question 9: The DOT proposal of December, 1979, included a so-called "local content" change in the Act. Please explain the purpose of the provision and indicate your views on including it in the legislation. Would this be a permanent change in the law?

The foreign automobiles' exemption would allow auto manufacturers that began U.S. production after the enactment of EPCA on December 22, 1975 to average U.S. assembled passenger autos with foreign-made cars in their CAFE.

This proposed amendment would not apply equally to all manufacturers. It would give favorable treatment to companies who began U.S. manufacturing after December, 1975 and deny the long-time U.S. domestic industry the same opportunity to include such foreign-made cars in their CAFE. Presently, only one manufacturer would be given this preferential treatment.

General Motors believes this amendment should not be included in this legislation.

Mr. Dingell. The Chair will now recognize his colleagues in order of their appearance.

The Chair recognizes the gentleman from Michigan, Mr. Stockman.

Mr. Stockman. Thank you, Mr. Chairman.

I gather from your testimony that all three of you are opposed to the Volkswagen amendment on the grounds that it creates a competitive advantage or it is essentially unfair.

As a practical matter, if we don't adopt it, they will hold their U.S. content to 74.9 percent, so we really don't accomplish anything except to reduce the number of jobs in the United States that might be supplying parts and components, as a practical matter.

But to overcome your objection, which I understand and sympathize with, what would be your response to the notion that we give every manufacturer, not just those who started after 1975, a fixed, up-front allowance, to count imported cars in their domestic fuel economy? In other words, if we were to find what level would be satisfactory to Volkswagen in terms of the Audis and Porsches that they import, if we give every manufacturer 75,000 or 100,000 up-front exemption, in other words, imported cars you could count in your fleet, would that be more satisfactory?

Mr. Potter. Mr. Stockman, if I may lead off for the group, the position I take on such a proposal comes back to the matters of principle that distinguish us. There are two that are involved here.

I must continue to come back to these matters of principle because I think in the regulatory business we will be facing them for decades to come.

No. 1 is the asymmetry. You have addressed the question of the asymmetry; that is, changing the rules so that they apply equally to all. That is a tremendous improvement from where we were. I note that same improvement has been made with respect to the AMC position. I consider that a great improvement.

No. 2 is that our industry is beset with long lead times and more stringent regulations. In situations where standards have been further tightened, we have asked over and over again for due allowances for lead time; that is, any change in the rules should give us enough time to meet the standards, whatever they may be.

A relaxation of the regulations has exactly the same property. If you relax it today to start the next model year, then the lead time necessary to take that into account has been foregone by those companies who are trying to do what you established earlier.

So, I must come back to principle, and that is, there is no leadtime now in our product programs to take any advantage of such a situation.

Mr. Stockman. Are you importing any cars?

Mr. Potter. Yes, we are. We are importing very few, but we will exceed the standards as we have stated. Our product programs are in such condition now that we will meet the law.

The difficulty in backtracking is, when does the regulation mean that it is really a regulation and it will be enforced?

Mr. Stockman. You are assuming one thing that I have doubts about, and that is, that the whole program is rational to begin with. There is a large element of arbitrariness and rigidity in the schedule. We are trying to come up with some pragmatic midcourse improvements in flexibility.

If you had a perfect law to begin with, then maybe your comments would be more pertinent; but there are obvious problems just in the technical construction of the law.

Mr. **Potter.** Mr. Stockman, I can only agree with your comments. I am not trying to defend the regulations.

As you know, we have objected to such regulations, for other reasons. If one is faced with regulation, then there are two principles that are involved here, and those are the two that I have enunciated.

Mr. **Stockman.** Could I ask Chrysler and Ford what your reaction to my proposal would be? Let me make it specific: Let us say we granted 100,000 exemptions to each manufacturer and they could count 100,000 imported cars.

Mr. **Kennedy.** Mr. Stockman, we are no longer designing cars because of fuel economy standards; we are designing future products because of anticipated market demand. We will exceed the passenger car fuel economy standards. There is no advantage to Chrysler Corp. for including imports; they will not help us exceed passenger car standards which we already expect to exceed.

As a practical matter then, including imports for us is no advantage while it remains one for Volkswagen. I think such a proposal does not change the fact that the amendment proposed is specifically for Volkswagen and should be considered as such.

Ms. **Petrauskas.** Congressman, we would support any proposal that evenhandedly treats the manner in which imports are calculated in terms of their inclusion in domestic CAFE. I hasten to add that at the moment I have no idea how we would take advantage of a proposal such as one to include 75,000 or 100,000, whatever the number might be, of imported vehicles.

Our principal objection has been founded on disparate treatment between domestic manufacturers, U.S.-owned domestic manufacturers, and others.

Mr. **Dingell.** If the gentleman will yield——

Mr. **Stockman.** I will be happy to yield.

Mr. **Dingell.** I detect—and I direct the question to all three witnesses—that there are several criticisms here of the proposal. The first is the question that it tends to advantage foreign production and imports. The second is that it requires a measure of time for persons other than those solicited to adjust to consequences, either beneficial or adverse, that might be occasioned to them in the marketplace through that. Third, I detect—although it has not been said—that there may be some question as regards the number of vehicles which will be permitted.

Am I correct?

Ms. **Petrauskas.** Mr. Chairman, I think, to summarize conceptually our difficulty, our objections to the VW amendment, there are really three elements to it, and they all relate to the openendedness of that amendment. It is not related to time; it runs in perpetuity. It is not limited as to scope. We have been referring to it as a VW amendment, and perhaps it is a disservice to our colleagues at VW; it may not be a VW amendment.

You can substitute the name of any manufacturer you wish.

Mr. Dingell. Say that again.

Ms. Petrauskas. It is equally applicable to any manufacturer who today does not have production facilities. The only thing that is certain is that it will never be a Ford, General Motors, or Chrysler amendment. We are by definition the only people who will never be able to take advantage of it.

The third conceptual objection we have is that we think it is wrong to use what is basically a regulatory statute and try to make trade policy by means of that statute. We think it is very important that companies who do business in this country be encouraged to invest in this country, but the right way to encourage that investment is not, in our judgment, by piggybacking it, if you will, on a regulatory statute. That ought to be done directly.

Mr. Stockman. Could I respond?

The point is true, but only indirectly. They would not face this problem if it were not for the regulatory statute there in the first place. In other words, it is the regulatory statute which created the problem of 75-percent threshold which has encouraged Volkswagen, unless some change is made, to hold its content below 75 percent.

So we are not making trade policy through a regulatory law. We are trying to modify or make flexible a regulatory law which is interfering with policy.

Ms. Petrauskas. That is quite correct.

Mr. Stockman. If you did not have the CAFE law, they would not have any reason to hold domestic content of the U.S. assembly plants to 74.9. Would that not be true?

Ms. Petrauskas. Yes, that is correct.

Mr. Stockman. So you are creating a distortion in terms of the investment and choice of product, whether offshore or onshore, by the technical terms of the CAFE law that we are here dealing with; isn't that true?

Ms. Petrauskas. Yes, that is correct.

Mr. Stockman. Therefore, by making this modification we are simply trying to create a situation of neutrality that would have existed had the law not been in effect for national energy and other policy purposes.

Ms. Petrauskas. I was not suggesting that it was otherwise. All I was trying to say is that our reasons for making those changes are a reflection of a certain trade policy. I happen to think that it is unfortunate to try to make trade policy in the context of regulatory statute. There has to be a better way for us to do that.

Mr. Stockman. Let me just ask one other quick question: How many cars did Ford import last year?

Ms. Petrauskas. I believe 75,000 passenger cars. I am not certain of that number. I believe that is correct.

Mr. Stockman. What about Chrysler?

Mr. Kennedy. About 130,000 passenger cars.

Ms. Petrauskas. We imported some trucks as well, but I don't have the truck number.

Mr. Stockman. Thank you, Mr. Chairman.

Mr. Dingell. The Chair recognizes counsel.

Mr. Finnegan. Ms. Petrauskas, in your testimony you indicated that you would support the idea of a carry-back/carry-forward provision of including a plan proposed by the DOT; but I understand from testimony by Dr. Potter of GM that you are opposing that idea.

Ms. Petrauskas. I should state what my understanding of the plan requirement is, and that is, in any year presently under EPCA, the manufacturer is required to file a plan, so-called premodel plan, which indicates whether the manufacturer will be meeting the standard and how the manufacturer proposes to do it.

What this proposed requirement would do would be, in any case in which a manufacturer has filed a plan which indicates that in that particular year the standard will not be met, and there are not sufficient offsetting credits, that the manufacturer, *x* number of months after that, has to submit a plan which indicates how it proposes to earn fully offsetting credits in the coming year, so that no penalty will be paid.

As I read the requirement, it is not a plan that is either approved or disapproved by DOT; it is simply submitted to DOT. It lays out the procedure and action that the manufacturer intends to take to meet the law. There is no requirement that the manufacturer follow that particular plan.

The only requirement is that when you get to the end of the carryback period, you will have fully offset any penalties that might have been assessed.

We have no objection to that. We think that is a reasonable requirement.

Mr. Finnegan. Dr. Potter?

Mr. Potter. I think our only point is that if NHTSA chooses to have a plan, they can have it by regulation. It is not necessary to have it by amendment or to put it in legislative form. The regulatory form would seem to be adequate.

Mr. Dingell. You are suggesting that we should have some language to take that course, as opposed to just leaving the report silent, to make sure what the intent of the subcommittee was on the point you have just addressed?

Mr. Potter. Really, the only point as far as we are concerned is that if you put it in legislation and conditions change, the statute has to change. You are better off to have it as a regulatory provision.

Mr. Finnegan. If it is set forth as a regulatory provision, don't you create some uncertainty as to what DOT might require? If you give them discretion to come up with a plan—in essence, that is what you are suggesting—you then create the uncertainty of what they might require as part of that plan and what kind of conditions would be imposed to get the credit.

I assume that you don't want that situation to occur.

Mr. Potter. No. The situation that we had visualized was that the only condition that would be a violation of law would be if the manufacturer did not actually earn the credits that he had stated. So that the question of the reporting sequence does not impact any longer on whether or not the manufacturer should pursue the plan he has in mind.

He is simply required to report.

Mr. **Finnegan**. I gather you do not object to the plan itself; you just want it to be done by regulation?

Mr. **Potter**. I would think that the requirement should be the least that would be reasonable for the purpose of NHTSA. I would hope that, given latitude, they would exercise that latitude to require the least that is necessary.

Mr. **Finnegan**. On the question of police cars and ambulances, it has been brought up by the UAW in testimony—and the chairman asked questions in his letter about it—as to whether they should be included in this legislation. Seemingly, most of you seem to oppose that idea; is that true? Are all three of you opposed to the idea?

Ms. **Petrauskas**. I am sorry. Perhaps I misunderstood the questions, counsel.

Mr. **Finnegan**. The UAW, I believe, in its testimony, raised the question as to whether the police cars should be excluded. They are excluded from the gas-guzzler tax and also under Executive Order 12003 it applies to the General Services Administration.

Ms. **Petrauskas**. Your question was, do we oppose that?

Mr. **Finnegan**. Should it be excluded from the CAFE? The question is, do you oppose that proposal?

Ms. **Petrauskas**. No, we don't oppose that exclusion. From our standpoint, it will not have very much effect. We estimate that the total market for police vehicles is some 60,000 units projected in 1980. We don't enjoy as much of that market as some of our competitors do. It is approximately 15,000 units in the case of Ford. So, from a CAFE standpoint, whatever may be the fuel economy of that vehicle, it does not have a very pronounced effect on CAFE because, simply, the volume numbers are minimal and generally the vehicles we sell as police packages are variations of our basic powertrain lineup. We don't have a special engine; we just make adjustments to a regular production engine.

As to ambulances, it is harder to estimate those because many of those are produced by bodybuilders. We estimate that the annual market for ambulances is anywhere from 3,000 to 5,000 units, of which maybe we enjoy 1,000. So, again, it would not have a very substantial effect on CAFE.

I guess to exclude them would not substantially help the CAFE test or hinder it. We are just simply neutral on the subject.

Mr. **Finnegan**. Mr. Kennedy?

Mr. **Kennedy**. We, too, support the exclusion, for many of the same reasons. The effect on overall fuel consumption is hardly measurable, yet an exclusion is probably the best way to get the performance that police and emergency vehicles need.

We will be able to make adjustments as well to enhance the performance of these vehicles, but we see no reason why that should be a penalty against our CAFE. Without an exclusion, we probably would not supply these special vehicles, and we think an exclusion is a good idea.

Mr. **Potter**. We have no objection to it. We see no compelling reason to do it. We are neutral.

Mr. **Finnegan**. Mr. Kennedy, in your testimony, you suggest that the language be changed regarding the imported cars from "passenger cars" to "motor vehicles." Can you give me more indication of what the implications are of that, and why you think that is appropriate?

Mr. **Kennedy**. The amendment was written to help companies like American Motors, which will start U.S. manufacture of vehicles developed jointly with foreign manufacturers. In this case American Motors will not meet the 75 percent local content requirement but can meet 50 percent and will build up to 75 percent in 4 years. It will then become a legitimate U.S. car built by U.S. workers. Chrysler is investigating similar arrangements with our foreign affiliates.

We may also want to start U.S. production of jointly developed vehicles. It may be in our case that the vehicle will be a light truck rather than a passenger car. The same reasoning which leads to this amendment for passenger cars for American Motors leads us to ask for the same flexibility for motor trucks. That is all. It is the same logic.

Mr. **Finnegan**. Can the other two witnesses indicate whether they support or agree with the proposal?

Ms. **Petrauskas**. As we indicated with regard to the basic passenger car amendment, we find it less objectionable than some of the others that have been offered, because it does not have that open-ended quality to it. There are some restrictions on it.

By the same token, those very restrictions may mean it is unlikely that we could ever take advantage of it. Our competitors could. So we would oppose an amendment like that.

Mr. **Finnegan**. You would oppose the amendment?

Ms. **Petrauskas**. Yes, sir.

Mr. **Finnegan**. Mr. Potter?

Mr. **Potter**. I have to come back to my second principle, and that is, that a change in the regulation close to the time of its becoming operative, without enough lead time, is really asymmetric. It is an objection in principle; it is one that we feel rather strongly about, and I will have to again come back to Mr. Stockman's answer to my objection in principle, that is certainly correct.

Another way of getting at it is to simply make the truck fuel economy standards meetable by the companies, in which case this is no longer a problem, and that was the position that we urged NHTSA to take.

Mr. **Dingell**. What change would have been required to carry forward the last objection? What would be the attitude of the other two panelists? What changes in the mileage standards would be necessary to carry out the recommendation that you have just made to the subcommittee, and what would be the position of the other two panelists?

Mr. **Kennedy**. We would not take advantage of this necessarily to meet standards. We might still like to take advantage of joint product development between Chrysler Corp. and our foreign affiliates, whether or not the standards were revised.

I am not entirely sure that I can suggest an amendment, a change in the standards, that would make this more attractive, unless I misunderstood what Mr. Potter has in mind.

Mr. **Dingell**. As I understand, Mr. Potter indicated he thought that since everybody seems to be having difficulty with particular standards, that maybe we ought to see to it that the standards are changed to make better sense in the marketplace in terms of the U.S. industry being able to meet them.

It is not the intention of this subcommittee that the Department of Transportation set standards that will be impossible to be met.

What comments do you have with regard to the changes that have been suggested, going to different mileage, as opposed to endorsing the type of change that has been——

Mr. **Potter**. Mr. Chairman, as I understood the Chrysler proposal and the reading of the testimony, the statement, it was suggested that there be an amendment to include the light trucks—to include the imports of the light trucks. If it is not necessary for Chrysler to meet a standard, then there is no need to change the standard.

If it is necessary for them to meet the standard, then there would be a suggestion that there is some other number that ought to be met, and I don't know what that number is.

At this point, our programs are in sufficient order so that we can meet the standards. But the fundamental position that I am stating here is that the standard as laid down by NHTSA should be meetable by the car companies, all car companies, if they have made a good-faith effort and have done the things that they should do.

Mr. **Kennedy**. We agree that the standards should be meetable, having made a good-faith effort. Our own truck plans for 1983 and beyond are to have a product mix which will meet competition and the standard. In this case, however, we suggest this inclusion of light trucks here not because we need them to meet 1982 standards, but because it is a matter of the most efficient use of our manpower and financial resources to investigate joint development of light-truck production with foreign affiliates and to begin production in this country as best we can, 50 percent or greater local content and increasing. But it is not to meet 1982 standards; it is just a matter of bringing products to market at the lowest cost to the consumer in later years.

Ms. **Petrauskas**. The only comment I would make is that the 1982 standards, of course, have been set. The 1983 and 1985 standards have yet to be set. As to 1982, I can't conceive of any way in which Ford or anyone else who had not planned on being in a position to take advantage of an AMC-type amendment could get themselves in a position to take advantage of it relative to the 1982 model year.

In our frame of thinking, the 1982 model year is tomorrow.

As to the standards, the only comment I can make is that I believe the Department has an obligation to set standards that are feasible and feasible for all manufacturers, and they have to make that determination based on either separate standards on imported vehicles and domestic vehicles, or if they have adopted the policy of combination, combining the two, then they again perhaps would come out with a different assessment of what the feasible standards may be.

I have difficulty seeing any tradeoff between the kind of import inclusion we are talking about and AMC import inclusion in compliance with standards. Those standards have yet to be set.

The determination of what is feasible has yet to be made.

Mr. **Stockman**. Just to follow up on that, do you have any recommendations regarding the 1983 to 1985 standards for two- and four-wheel-drive vehicles, light trucks? Do you feel we ought to address it in this legislation in some way, to lessen the possibility that we will have another crunch or controversy once the 1983 to 1985 standards are proposed?

Mr. **Kennedy**. We suggest that they be set at levels which all companies can meet, otherwise there will be need for special consideration again.

May I have a moment? I think I can clear up some of the confusion that may be before us.

Chrysler has asked for assistance in meeting the 1982 standards by including imported vehicles. Beyond 1982 we don't think we need that, and we don't want that.

Mr. **Stockman**. How do you know? You don't know what standards are beyond 1982.

Mr. **Kennedy**. We think our fleet will be competitive with the other manufacturers. The amendment we were talking about earlier was not to help our 1982 fleet, but it was to begin domestic production of light trucks in later years, and that is considerably farther out in the future, if in fact it ever happens.

What we are asking is flexibility of allowance to begin U.S. production and employ U.S. workers as soon as possible.

There are two issues before us, and if they have confused the discussion, we apologize for that.

Mr. **Dingell**. In other words, you are buying the predicate for the light truck suggestion made on product development, as opposed to difficulties of meeting the standards?

Mr. **Kennedy**. That is right.

Mr. **Dingell**. Counsel?

Mr. **Finnegan**. Thank you, Mr. Chairman.

The last question I have is for Dr. Potter.

You indicated in your answers to the questions of the chairman [see p. 177] that you would be opposed to granting small manufacturers a total exemption to the established fuel economy standards. We are talking about the 10,000 vehicles or less. Is that the position of the other two panelists, Chrysler and Ford? Are you both opposed to the 10,000 exemption?

Mr. **Kennedy**. We think it is probably a good idea. It appears to be nothing more than an administrative burden both for the Government and the small manufacturers.

I think it is true that there are less than 10,000 vehicles involved and, of those, about three-quarters are products of Checker Motors. We think that probably is not worth the trouble that is now involved.

Ms. **Petrauskas**. I have to admit that conceptually that proposal is no different from some of those to which we strenuously object. It is minimal and therefore we don't oppose it; its effect is minimal.

Mr. **Finnegan**. Mr. Kennedy said that the DOT has indicated that this is a proposal which the Department itself would have made, and they indicated that it is one that is causing a lot of problems administratively within the agency. He also said they have processed eight applications for lower fuel economy standards since 1975 and have denied none of them. They anticipate an average of 10 applications annually in the future.

Mr. POTTER. The regulatory burden is something that is insisted on by NHTSA. They have it within their power to change the regulation as they choose.

Mr. FINNEGAN. How would they change the regulation?

Mr. POTTER. Just say, "Please put in writing on one page why you want this."

Mr. FINNEGAN. That still requires them to go ahead and process something that is fairly pro forma.

Mr. POTTER. If it is a burden to anyone, it is only because NHTSA insists on it being a burden. No one is in disagreement with what the Checker Co. is doing. That should be pro forma. I don't think you need a pile of documentation and long delay in order to answer that question.

But there is a point in law, if you have regulation of this variety, it must be to some purpose. One would assume that, and it is supposed to take care of the pro forma cases.

There may be some other situation which is not that at all. There may be some manufacturer who is not making a good-faith effort to get it down. Some activity other than a total exemption would seem to be required on the part of the Government.

Mr. FINNEGAN. You can't write regulations to fit just pro forma situations, as you point out. The statue itself creates the problem that is set forth here. NHTSA has put forth regulations. You are right, that they could change their regulations, but you can't have a simple form for one company and a nonsimple form for another.

In fact, there is a possibility they would have to have additional information; is that correct?

Mr. POTTER. It is not a very large point to take the time of the committee on. It is simply that they have the power to regulate in any fashion they choose. If it is a burdensome regulation, I think they have an obligation to think it through and change it.

Mr. STOCKMAN. Mr. Chairman.

Mr. DINGELL. It might be good discipline for them.

The gentleman from Michigan.

Mr. STOCKMAN. Can I followup on that? It seems kind of trivial or academic at the present time, but what about 10 years down the road, when we have 27.5 miles a gallon or you get even higher standards at some point, 35 miles, you have already put in the basic law that smaller manufacturers will be exempted up front.

Don't you run the danger of creating a proliferation of small companies to supply the high performance market, because once you get the fleet averages up in the midthirties, if that would be the case for future policy, it would be very difficult to market those kinds of cars without bringing your average down.

Mr. POTTER. We agree, Mr. Stockman, that such is almost guaranteed to occur. The situation that one is faced with here is is some special-purpose vehicles.

We were quite concerned about that for ambulances and for other special-purpose vehicles, and they should have an exemption. What will certainly happen, if it is a blanket waiver, is what you have suggested.

If NHTSA were to think the problem through, they could arrive at a far less burdensome way of granting the waivers and exemptions where a special-purpose vehicle warrants it, and good faith is being put forth by that manufacturer to try to save energy.

Mr. Stockman. Mr. Kennedy, I just want to followup on another question. You have asked for the rights—at least for 1981 and 1982—to count imported trucks in order to get the CAFE for two- and four-wheel-drive vehicles?

Mr. Kennedy. That is right.

Mr. Stockman. To go back to my earlier proposal, let me reformulate it and suggest that each domestic manufacturer would get to count 100,000 imported vehicles to be divided among the three CAFE categories as they see fit, two-wheel drives, four-wheel drives, passengers.

Mr. Kennedy. That certainly would help us.

Mr. Stockman. That would take care of your problem without creating a Chrysler amendment?

Mr. Kennedy. It would. I may have misunderstood your earlier discussion of passenger cars. If it would include trucks, that is what we are asking for.

Mr. Stockman. Would it be true that each of the domestic manufacturers already imports, combined, more than 75,000 or 100,000 trucks and cars?

Mr. Kennedy. We are less than that, but we do import them now.

Mr. Stockman. On a combined basis?

Mr. Kennedy. On a combined basis we are well over that. We will import no more vehicles this way than we will any other way.

Mr. Stockman. That is what I am saying. They are coming in anyway?

Mr. Kennedy. They will be here anyway.

Mr. Stockman. What would be the case with GM?

Mr. Potter. My memory says that we are considerably less than 100,000 total units. Let me supply that for the record.

Ms. Petrauskas. Congressman, I will have to do the same. My recollection is that after future model years, our number of imported vehicles, cars and trucks combined, would be less than that.

Mr. Stockman. Thank you.

Mr. Dingell. Ladies and gentlemen, the committee thanks you for your very helpful testimony today. We will keep carefully in mind your comments on our legislation.

The Chair does advise it is the intention of the Chair to move forward and as rapidly as possible. We will be looking to our witnesses and panelists for advice.

Thank you for your attendance today.

The next panel is Mr. Marvin W. Stucky, vice president of government affairs and corporate planning, American Motors Corp.; Mr. Robert J. McIntosh, Checker Motors Corp., attorney, and Mr. Philip A. Hutchinson, Jr., director of government and industry relations, Volkswagen of America, Inc.

We are happy to have you with us. If you will each for purposes of the record, identify yourselves and any of your associates at the table, we will be most pleased to receive your testimony.

Mr. Hutchinson. Thank you, Mr. Chairman. My name is Philip Hutchinson, director of government and industry relations for Volkswagen of America.

Mr. McIntosh. My name is Robert J. McIntosh, an attorney for Checker Motors Corp.

Mr. Stucky. I am Marvin Stucky, vice president of governmental affairs and corporate planning, American Motors Corp. With me today is Kevin P. Tighe, Washington counsel for American Motors Corp.

Mr. Dingell. Mr. Tighe is well known to me and greatly respected.

Mr. Tighe. Thank you, Mr. Chairman.

Mr. Dingell. We will recognize you from your left to your right.

STATEMENTS OF PHILIP A. HUTCHINSON, JR., DIRECTOR OF GOVERNMENT AND INDUSTRY RELATIONS, VOLKSWAGEN OF AMERICA, INC.; ROBERT J. McINTOSH, COUNSEL, CHECKER MOTORS CORP.; AND MARVIN W. STUCKY, VICE PRESIDENT OF GOVERNMENT AFFAIRS AND CORPORATE PLANNING, AMERICAN MOTORS CORP., ACCOMPANIED BY KEVIN P. TIGHE, COUNSEL

Mr. Hutchinson. My testimony is limited to an amendment proposed by DOT that will encourage foreign automobile companies locating in the U.S. to make greater use of American labor and suppliers. We support this amendment.

Volkswagen of America is a U.S. corporation and is both a domestic manufacturer and an importer of automobiles. In 1978 we completed an assembly plant in Westmoreland, Pa. This plant will produce approximately 200,000 Rabbits and 24,000 light pickup trucks in 1980. Over 5,000 workers are employed at our Pennsylvania plant, which has a weekly payroll of $1.5 million.

We plan to open a second assembly plant in Sterling Heights, Mich., which will employ an additional 4,000 workers. VW's Charleston, W. Va., plant supplies sheet-metal parts and body stamping for U.S.-built Rabbits and pickups. Our Fort Worth, Tex., plant supplies air-conditioners, radiators, and plastic parts.

In addition to our domestically produced vehicles, VW imports other VW's—Scirocco, Dasher, Vanagon, and Rabbit convertible—and Porsches and Audis. This full range of vehicles permits Volkswagen of America and its dealers to compete successfully in the U.S. market and to provide the service and parts that consumers demand. An additional 50,000 workers are employed in VW sales and service.

For 1979, VW's total U.S. sales were 348,546 vehicles. This represents about 3 percent of the U.S. market. Just by way of comparison, GM captured 59 percent, Ford 26 percent and Chrysler 11 percent. So, while we believe we are an able competitor in this market, clearly we are small by comparison to the Big Three.

One of our main goals in building cars here is to make maximum use of U.S. labor and components. Unfortunately, existing law will penalize VW insofar as calculating fuel economy is concerned if our U.S.-built cars contain more than 75 percent domestic content.

Beginning with the 1980 model year, Volkswagen's fleet average for fuel economy purposes is calculated—according to the Energy

Policy and Conservation Act, EPA—by separating the vehicles into domestic and imported categories. Whether these two classifications of vehicles are averaged together or separately depends upon the domestic content of VW's built in the United States.

If VW's produced at our Pennsylvania plant contain less than 75 percent U.S. or Canadian value-added content, our fleet average will be the sales weighted average of all Volkswagen, Porches, and Audis for that particular model year sold in the United States.

Even though our Rabbits are built in Pennsylvania by UAW workers, the law says they are imports if they contain less than 75 percent domestic content. If U.S.-produced VW's exceed 75 percent U.S. component, we would be dealing with two fleet averages for fuel economy purposes.

In this case, our most fuel efficient cars—the domestically manufactured VW Rabbits—would comprise one fleet and would also have the highest sales volume. Our imported cars, which would comprise the other fleet, would have a lower fuel economy average. The availability in the United States of these imported cars could be jeopardized with adverse implications for our dealers who require a full model line to be competitive.

In order to avoid this situation, it would be necessary for VW to restrict its use of U.S. components to below the required 75 percent domestic content level in order to average our domestic and imported fleets to meet fuel economy requirements.

Incidentally, the projected corporate average fuel economy for 1980 for all domestically produced and imported VW's, Porches and Audis is 31.8 miles per gallon, well above the 1985 standard mandated by law.

Presently, U.S.-built Rabbits contain approximately 60-percent domestic content, with the pickup truck slightly higher, at 61 percent. Our domestic content is rising rapidly due to competitiveness of U.S. suppliers compared to those in Europe. This is a consequence of the dollar/deutsche mark relationship. As we wish to continue to buy in America, we fear that purchases may be hampered when we further approach the 75-percent barrier.

We believe that Congress in establishing those provisions in the act which separate domestically manufactured fleets from imported fleets for the purpose of fuel economy standards had in mind that situation where a domestic manufacturer might want to offset the lower fuel economy average of a fleet of U.S.-made cars by the higher fuel economy average of cars imported from its foreign subsidiaries. We do not believe that Congress envisioned the opposite case, such as Volkswagen's, where cars formerly imported would be in the future built in the United States.

The DOT amendment would permit a manufacturer to average U.S. assembled automobiles with its imports if U.S. production began after the act was passed, December 22, 1975.

VW believes that enactment of this amendment would encourage foreign automobile manufacturers to locate in the United States and to build their best selling, most fuel-efficient cars here, a positive contribution to the U.S. energy and balance-of-trade situations. This amendment would also encourage other companies, like Volkswagen, who decide to build cars in the United States, to make maximum use of American labor and suppliers.

Mr. Chairman, I would like to address very briefly the argument used by prior witnesses in opposition to the DOT amendment which we favor, in order to put the issues in proper perspective.

One witness stated that the DOT amendment would:

> Permit some manufacturers to bring in low fuel economy foreign-made vehicles and that this undermines the Nation's goals to induce fuel economy and improve our balance of trade.

Actually, what the amendment does is encourage manufacturers to build cars in the United States, a positive contribution to the balance of payments.

Volkswagen, for example, is building cars in America that are the most fuel efficient of any cars sold here. Our U.S.-built diesel Rabbit achieves over 50 miles a gallon on the highway, according to EPA. Certainly it is better for the U.S. balance of payments that these cars be built here, rather than imported.

With regard to the argument that certain of our imports could not meet the standards by themselves, it should be understood, as I know you do, Mr. Chairman, that the law does not require individual car models to meet the standards but, rather, the manufacturer's entire fleet.

Another witness referred to the DOT amendment as the "Volkswagen amendment" and said "it would allow Volkswagen to continue to produce and import less fuel-efficient cars."

In response, I would note that the proposed amendment would apply to any manufacturer establishing production in the United States after the date of the act, not just VW. More importantly, enactment of the amendment will not result in VW producing less fuel-efficient vehicles.

What I think is really bothering the companies is that they see the provision as offering a special opportunity for a company to build bigger, less fuel efficient cars. But is this really a reasonable argument? I submit it is not.

The marketplace is dictating more fuel efficiency, not less.

Insofar as Volkswagen is concerned, we are interested in building more fuel-efficient vehicles here.

In yesterday's Washington Post, the lead editorial commented on an experimental VW that is achieving fuel economy in the 70-miles-per-gallon range. We have built a car for the Department of Transportation which achieves a highway-city average, according to EPA, of 60 miles per gallon. So I think the fears of our competitors that we will soon be building bigger, less fuel efficient cars and importing them in the United States is unfounded.

What the amendment really does, Mr. Chairman, is promote more U.S. jobs. It is for this reason that the amendment is supported by the Department of Transportation, the Department of Labor, the United Auto Workers, the Office of Management and Budget and many Members of Congress.

While there is another approach to solving this domestic content dilemma that would apply to all manufacturers in an evenhanded way, we think that the Department of Transportation has proposed a reasonable solution which merits adoption by the Congress.

Mr. Chairman, thank you very much for the opportunity to appear before you today.

[Attachments to Mr. Hutchinson's prepared statement follow:]

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CHART ILLUSTRATES VW'S INABILITY TO MEET
THE FEDERAL CAFE STANDARD FOR 1984 AND
BEYOND IF DOMESTIC AND IMPORTED FLEETS
ARE AVERAGED SEPARATELY FOR CAFE PURPOSES

CHART 1

VW Corporate Average Fuel Economy (CAFE)

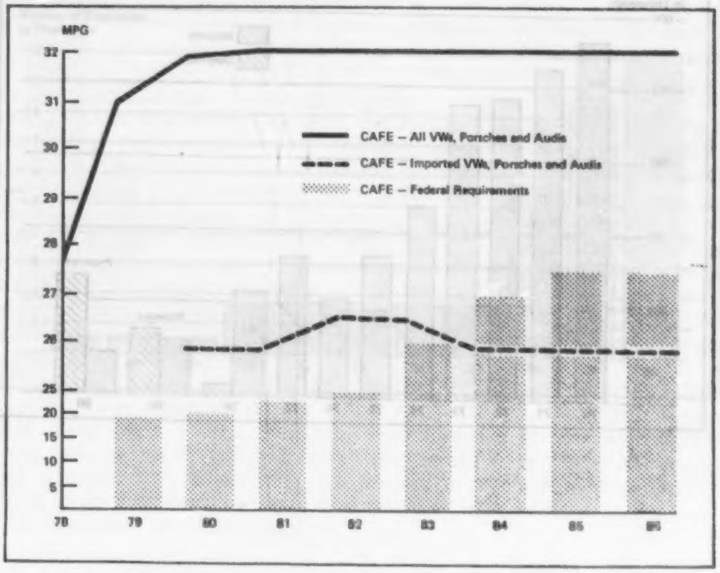


CHART ILLUSTRATES THE YEARLY
INCREASE IN VW'S DOMESTIC SALES

CHART 2

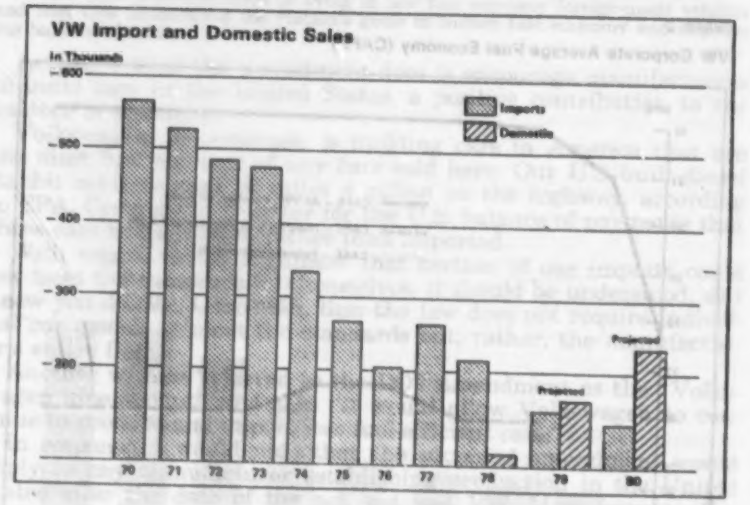


CHART ILLUSTRATES VW'S
DIRECT IMPACT ON AMERICAN LABOR

CHART 3

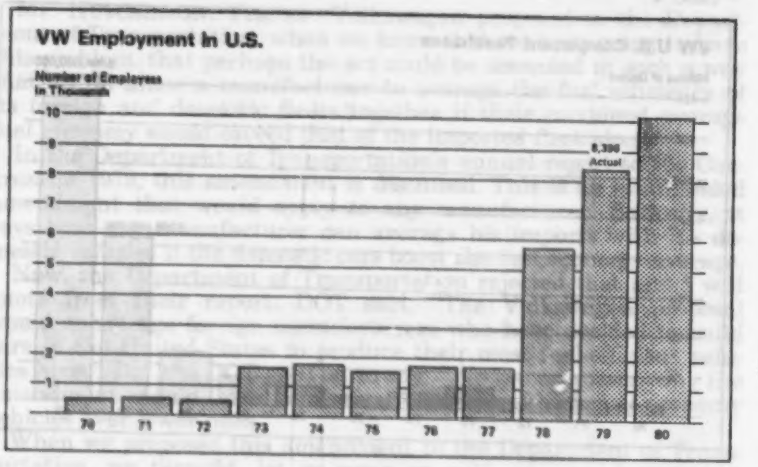
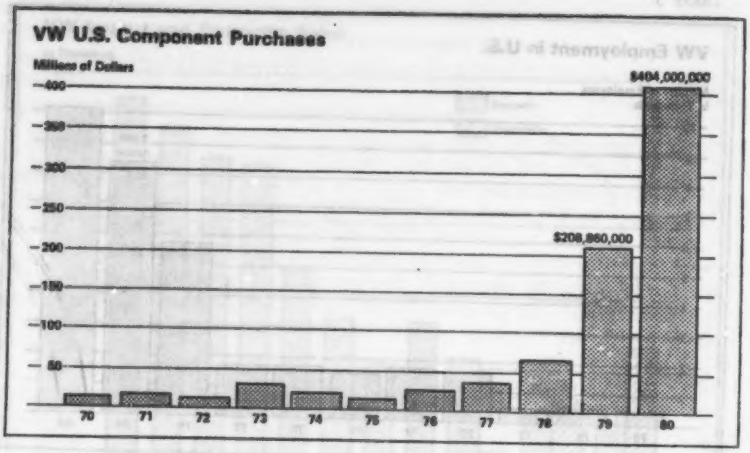


CHART ILLUSTRATES VW'S INCREASING USE OF U.S. COMPONENTS

CHART 4



Mr. **Dingell.** Just to keep the record straight, Mr. Hutchinson, you said there is another way?

Mr. **Hutchinson.** Yes, sir.

Mr. **Dingell.** Would you tell us what that is, so that we have that before us?

Mr. **Hutchinson.** Yes, sir. Volkswagen proposed to the Department of Transportation, when we knew that we were going to have this problem, that perhaps the act could be amended in such a way that would allow a manufacturer to average the fuel efficiency of its foreign and domestic fleets together if their combined average fuel economy would exceed that of the imported fleet alone.

In the Department of Transportation's annual report to the Congress in 1979, this amendment is discussed. This is an evenhanded amendment that would apply to any manufacturer. Basically, it says that any manufacturer can average his imports with his domestic vehicles if the domestic cars boost the fuel economy average.

Now, the Department of Transportation rejected that and I will quote from their report: DOT said, "The Volkswagen proposal would encourage foreign manufacturers who have decided to build cars in the United States to produce their most fuel-efficient vehicles here." But the DOT goes on to say, "We see no reason why the amendment should favor domestic production of high fuel economy vehicles over lower ones."

When we proposed this amendment to the Department of Transportation, we thought, let us come up with an amendment that would have both a favorable job impact and a favorable fuel efficiency impact. DOT decided that they would only direct their proposal to jobs, and therefore, the amendment that is in the DOT annual report covers jobs only and not fuel economy.

Mr. **Dingell.** Mr. McIntosh.

STATEMENT OF ROBERT J. McINTOSH

Mr. **McIntosh.** Mr. Chairman and members, I appreciate this opportunity to be heard briefly on behalf of Checker.

Congressman Howard Wolpe made a comprehensive presentation in our behalf at the previous hearing of this subcommittee; therefore, I will summarize briefly our statement, bearing in mind that he has already made a presentation which we very much appreciate.

When Congress adopted the corporate average fuel economy concept, at the early stages of drafting it was recognized that the small manufacturer making one vehicle essentially has nothing to average, and that to avoid wiping out all the small manufacturers, Congress adopted the 10,000-vehicle limit, allowing a different standard to be set if all feasible efforts to attain fuel economy were made.

This has functioned now for 5 years. This was adopted to avoid some of the questions raised here this morning, so that nobody had a competitive advantage, and to assure reasonable efforts by the marginal national producers such as Checker, Avanti, or Excalibur.

After administering this act for a number of years, the Department of Transportation made the point that it was a burden and considerable expense to the Government, it was a burden and considerable expense to the small manufacturer, and that it really was not saving any significant amount of fuel. I think the facts pretty well verify that.

Now you are talking about a recommendation of DOT for exempting, as was originally discussed under CAVE standards 5 years ago, the small manufacturer defined as one who makes less than 10,000 units and is a separate manufacturing company.

The aggregate total of vehicles manufactured by companies who would qualify as small under this standard is less than 10,000 units in a year. Of those, we make over half; so that you are getting down to a very small fractional part of the market.

In our particular instance we sell 95 percent and upward of our vehicles to commercial cab fleet operators in big cities, basically New York, Chicago, Pittsburgh, places like that. These cab fleet operators run cost accounting; they buy our vehicles if they are convinced that for their particular needs they can generate more revenue and move more people at a lower cost per passenger with our vehicle.

We believe that for this specialized type of use the Checker is the most cost efficient vehicle available. I believe the mass transit data tend to substantiate that.

This becomes more important as more cities move to a shared passenger concept with taxicabs.

When Congress adopted the Energy Tax Act of 1978, a similar provision was adopted for small manufacturers. Our vehicles this year will clear the gas-guzzler provision, but from 1981 on we will have some vehicles subject to a possible penalty.

For us, eliminating this procedure eliminates the duplication of regulation but leaves us with extensive market pressures, plus the regulatory supervision of the gas-guzzler tax procedure to insure that we make maximum feasible improvement.

The energy impact of this exemption is minimal or nonexistent. The savings to the Government and the small manufacturer are substantial.

I would like to direct one brief remark to the dialog here earlier on the concept that this might create some situation that will fragment the industry in order to get under the exemption tent.

I think that has some real, practical limitations, because of the economic factors that reduced the auto industry from hundreds of companies to where we can sit here with our 5,000 units and say we are the sixth largest domestic producer. Those practical problems pretty much prevent anybody spinning off and starting the independent manufacture of automobiles in order to get to be a small manufacturer under the exemption provision.

Second, the mechanics of solving this by regulatory action would require DOT to really not carry out the present statutory burden. They have to certify that in our manufacturing process, we have not foregone any mileage improvement that was economically feasible for us to accomplish.

This requires a full process review, whether you are dealing with Avanti's 200 vehicles, or Checker's 5,000. It is a cost and engineering analysis required by statute.

The DOT recommendation is a practical answer to the time-consuming burden that a few specialized manufacturers create when they are being regulated within a 10-million-unit production regulatory pattern.

The practical matter is that in the United States the only small independent that even approaches production in the manufacturing sense is us, and we don't get very close. We rely totally on General Motors' technology, drivetrains, and their cooperation in testing and some engineering problems.

Thank you.

[The prepared statement of David R. Markin, president, Checker Motors Corp., submitted by Mr. McIntosh, follows:]

STATEMENT OF DAVID R. MARKIN, PRESIDENT, CHECKER MOTORS CORP.

Checker Motors Corporation appreciates this opportunity to testify in support of the proposed amendment to Title V of the Motor Vehicle Information and Cost Savings Act which would exempt automobile manufacturers producing fewer than 10,000 vehicles per year both from the fuel economy standards and the semi-annual reporting requirements.

When the Congress developed the Corporate Average Fuel Economy concept of the Energy Policy and Conservation Act of 1975 it recognized at the drafting stage that "averaging" was impossible for the small manufacturer, and that some other approach was necessary to give small manufacturers a chance to survive.

As early as December of 1974, Senator Magnuson, in a letter assuring us that the Senate committee recognized the small manufacturer's problem, said that:

> "The range of values contained in 504(c) of the staff working draft were computed with major auto makers in mind, where a great deal of flexibility exists to improve fuel economy."

It is our understanding that the 10,000 unit limit and the "maximum feasible standard" test was adopted, in preference to a somewhat higher production limit and a total exemption, in order to avoid any competitive advantage and to assure reasonable efforts by the marginal producers.

After several years experience the Department of Transportation last spring recommended exempting small manufactuers (fewer than 10,000 vehicles per year) from the economy standards and the semi-annual reporting requirements.

In an analysis submitted by the Secretary of Transportation in support of this recommendation, he said:

> "Administration of this provision is burdensome, both for the Department and the low volume manufacturers, and contributes little to the achievement of the goal of fuel savings."

We agree with the Secretary of Transportation.

In the 10,000,000 vehicle per year U.S. market, this amendment will effect less than 1 vehicle out of 1,000 sold. Of the vehicles effected, Checker will market over 50% or about 1 vehicle of each 2,000 sold. Avanti will sell one of each 50,000 sold.

Of the 8 to 10 companies that may qualify for this exemption, most produce 200 or 300 units per year and provide vehicles for that small segment of the public which will pay same premium for a "different", "unique", or "classic" car. A few of our cars are sold in this market. I wish we could sell more.

However, over 95% of our production is marketed each year to a group of unsentimental businessmen - the cab fleet operators in the large cities of the U.S. They are under extreme cost pressures. They buy our cabs when their analysis of their operating needs convinces them that they can move more people and generate more revenue, at a lower cost per passenger with our vehicle than any alternative.

For this specialized service, we believe that Checker is the most cost efficient vehicle available - and I believe Urban Mass Transit Administration data tends to confirm this. This is increasingly important as the "shared ride" concept is adopted in more communities.

We manufacture vehicles which can carry 8 or 9 passengers. Our standard cab, with jump seats, handles 5 passengers in the rear compartment. Our cabs have heavy-duty components, are classified as "mid-size" cars and on M.P.G., compare favorably with six passenger standard sedans. We make a commercial vehicle for commercial use and survive because we are cost efficient in the marketplace. We have done so for over 55 years and hope to continue.

If the standard American sedan could provide the capacity and durability required for service in big city fleet operations, we would not be in business. (Many fleet operations put as much as 6,000 very tough miles on a car in 30 days time).

We have no complaints about the present provision or its administration, but we do agree with the Secretary of Transportation that it is a unnecessary burden both on the manufacturer and the government.

We realise that some of the major manufacturers expressed opposition to this exemption when the D.O.T. recommendation was issued last year. We understand their concern for the principle of equal treatment. The American auto manufacturers effected by this may, by legal definition, be manufacturers, but we do not see ourselves, or this exemption, as having any identifiable impact on the automobile market or fuel supplies.

In a 10 million car market where the largest company makes 5 million cars and the 6th largest manufacturer makes less than 5,000 cars, we believe that a practical distinction can be made without adversely effecting the principle of equal treatment among competitors. The principle will still be 99.9% intact.

Discussion of this subject is sometimes confused by the Rolls Royce situation. The tiny market for cars in the $50,000 to over $100,000 price range is served by Rolls and various customizers. This is a never-never land as far as we are concerned. Whether a person buys a Rolls Royce, a stretched Fleetwood, or a customized Continental, is in fuel economy impact, totally immaterial.

The Corporate Average Fuel Economy provisions had no direct impact on the large luxury car market - Fleetwoods and Continentals were averaged in, and Rolls met the maximum feasible effort test. The proposed exemption will not change this result.

To provide further constraints on this market, Congress adopted the Energy Tax Act of 1978, assessing a substantial graduated excise tax on lower-mileage cars.

In the Energy Tax Act of 1978, a maximum feasible fuel economy determination, comparable to 502(c), was established for small manufacturers under the gas guzzler tax provisions. It requires a determination by the Secretary of Treasury, after consultation with the Secretary of Energy, Secretary of Transportation, and other appropriate Federal officers, of the maximum feasible fuel economy level attainable by the small manufacturer.

Our vehicles all clear this provision in 1980, but from 1981 on, we will be marginal on some vehicles. For us, the proposed exemption eliminates duplication of regulation, but leaves us with both market pressures and regulatory supervision to insure the maximum feasible mileage improvements.

The remaining companies market 200 or 300 cars each. Most of them will join us under the Secretary of Treasury, and the 1978 act. The energy impact of the proposed exemption is minimal. The savings for the small manufacturer and the government are substantial. We urge the committee to approve the recommendation of the Secretary of Transportation.

Specialized vehicles such as taxicabs and other para-transit vehicles will play a critical role in the expansion of public transportation capabilities in our urban centers.

The necessary passenger capacity, including wheel chair access, and the heavy duty construction required, preclude the possibility of such vehicles meeting future passenger car fuel economy standards. We believe that such vehicles should be regulated under separate fuel economy standards, as a commercial vehicle, not a passenger car.

Pending such classification, this exemption will also enable Checker and other low volume manufacturers to attempt the development of a new generation of para-transit vehicles, for limited production, without facing possible penalties under Corporate Average Fuel Economy standards.

We appreciate, as I am sure all small companies do, the concern for our problems expressed by this committee and its staff in past years as well as the courtesy and assistance that has been extended to us by the Department of Transportation.

Mr. DINGELL. Mr. McIntosh, we thank you for your very helpful testimony. As your former colleague and old friend, I am delighted to see you back here.

Mr. McINTOSH. Your memory is very durable, Mr. Chairman.

Mr. DINGELL. I am glad to see you in good health and successful. I observe you have grown rather gray since I last saw you.

Mr. McINTOSH. Noticeably so.

Mr. DINGELL. It is good to see you.

The Chair now recognizes Mr. Stucky.

STATEMENT OF MARVIN W. STUCKY

Mr. STUCKY. Mr. Chairman, we have submitted a statement for the record. With your permission I will recap that statement here this morning.

I am pleased to have this opportunity to present our company's views on proposed amendments to the Energy Policy and Conservation Act—EPCA—which are under consideration by this subcommittee.

The issues involved are of vital importance to American Motors. In the words of our chairman of the board, Gerald C. Meyers, "Every automobile company in existence today has to make a choice—lay out the battle plan or perish." We have laid out the battle plan and with your understanding and help we expect American Motors to have a strong future in the evolving worldwide automobile industry which we foresee narrowing to about a dozen independent automobile manufacturers by the end of the 20th century.

AMERICAN MOTORS' POSITION IN THE AUTOMOBILE INDUSTRY

American Motors is the smallest of the four major domestic manufacturers, accounting for approximately 2 percent of the units sold in the United States.

Approximately 30,000 people are directly employed by American Motors, and our 2,200 dealers employ an additional 45,000 people. This means that a total of approximately 75,000 people are dependent upon a strong and vibrant American Motors for their livelihood.

American Motors is owned by more than 150,000 stockholders who have faith and confidence in what we are all about. They have given our new management team and future plans and programs a strong vote of confidence.

Even though American Motors is not a small company by most standards, our relative size is quite small in this industry, which is highly capital-intensive and populated by giants. Despite the problems of scale and the obvious limitation of resources, we are committed to remaining a viable manufacturer of passenger cars and other transportation products.

This commitment has resulted in a progressive program of introducing new product lines in the smaller, fuel-efficient segment of the market and discontinuing our least fuel-efficient car lines. Our cars are now all positioned to compete in that portion of the market populated by small cars, including imports.

These moves involved the deployment of resources which serve the dual purposes of satisfying the demands of the marketplace as well as the dictates of mandated Government fuel economy requirements.

In addition to these relatively short-term changes, our new management team focused on the inherent structural disadvantages of a company the size of American Motors and set about to develop a plan to assure continuity and active participation in a more highly concentrated worldwide automobile industry as visualized for the future.

The first requisite of such a plan was to obtain access to an advanced technological base and at the same time leapfrog several years' time and several billion dollars of investment cost. Clearly the most expeditious way to accomplish this goal was to develop an affiliation with a large worldwide company which possessed the necessary advanced technology but one that also needed a strong American partner with access to the large U.S. market. Such an affiliation did eventually emerge.

After many months of discussions it became clear that Renault of France and American Motors were an ideal match, with the strengths of each complementing those of the other. These negotiations resulted in a series of agreements between the two companies.

RENAULT-AMC AGREEMENTS

The first agreement, announced on January 10, 1979, provided for mutual distribution of each company's products.

More significantly, further negotiations resulted in a manufacturing agreement which was announced on October 12, 1979. This agreement provides for American Motors to manufacture high-technology, highly fuel-efficient, front-wheel drive passenger automobiles based on Renault technology in its Kenosha, Wis., facilities commencing in 1982.

Additionally, Renault will provide $150 million in financing, consisting of an equity interest in common stock, convertible subordinated debt and subordinated debentures. Ultimately this could represent a 22.4-percent interest in American Motors Corp. by Renault. Renault will also make available $50 million in supplier credits and other arrangements for working capital requirements.

We believe this affiliation between American Motors and Renault of France to be the boldest move made by any two automobile companies in recent times to meet the needs and challenges of the future. The acquisition of an equity interest in American Motors by Renault is a ringing vote of confidence in our company and the U.S. economy as a whole. Clearly, the underlying reasons for the agreement are to insure that American Motors will remain a vigorous competitor in the small car segment of the market and to insure that American Motors will comply with the future corporate average fuel economy standards mandated by EPCA.

While AMC's future prospects for meeting the EPCA standards on a total corporate fleet basis are assured, there are some near-term problems which must be addressed. The American Motors domestic nameplate cars have consistently exceeded the EPCA fuel economy standards to date. However, our projections indicate that this group will fall short of compliance starting with the 1982 model.

This trend will continue at an accelerated rate since the stringency of the federally mandated fuel economy standards increases at a much faster rate than that for any possible fuel economy improvements.

This group of cars, considered relatively small and energy efficient by today's standards, will still be very competitive with cars of comparable size and weight in the mid-1980's. Nonetheless it is essential that a substantial number of small, highly energy-efficient cars be added to this fleet in order to improve the corporate average fuel economy performance.

This is illustrated in the attached chart, exhibit I, on your left, where you can see the two bottom lines. [See p. 211.] The black one is the fuel economy law, the next one up is the blue one, and we see that we cross the law in about 1982 and from that point forward we are no longer able to meet the standard.

In addition, such added offerings would round out the total fleet from a merchandising standpoint, making it a very viable offering to the public.

This is where the Renault cars come in, but there is a serious problem.

THE PROBLEM

The main thrust of the agreements with Renault provides for the manufacturing of the high-technology, highly energy-efficient front-wheel drive passenger cars in the American Motors plants commencing with the 1983 model. Because of technicalities in the present law related to definition of domestically manufactured passenger cars, the inclusion of the Renault cars in the American Motors corporate fleet will not be possible before the 1985 or, more likely, the 1986 model year.

As a result, this would leave a number of model years in which our corporate fleet could be judged to be in noncompliance with the standards, with the attendant exposure to the assessment of fines and penalties as provided by present law.

Existing law defines but two kinds of passenger cars—namely, domestically manufactured and nondomestically manufactured passenger cars. Each category is considered to be a separate fleet for the purpose of calculating fuel economy and each must meet the standard.

In order to qualify as a domestically manufactured passenger car, 75 percent of its value as represented by the cost of the car to the dealer must be of domestic U.S. content.

When EPCA was enacted, in 1975, the intent of Congress in establishing the 75-percent domestic content requirements was directly related to the preservation and enhancement of U.S. jobs. As such, this provision was incorporated into the law at the behest of the United Auto Workers.

The purpose of the provision was to preclude the major domestic manufacturers from including their high volume captive imports in their corporate fleets in order to ease the burden of meeting the standards.

The underlying concern was the possibility of an upsurge of foreign manufactured cars coming into the United States at the expense of domestically manufactured cars, effectively resulting in the exportation of jobs. While this concern may well have been valid at the time, it was little noted that this requirement would not suit the congressional intent of job preservation in all circumstances—for example, the American Motors-Renault manufacturing operations.

Since 1975 it has become apparent that the 75-percent domestic content requirement has not achieved its intended effect of protecting and enhancing employment opportunities in this country. In fact, the opposite is true. In the intervening years since 1975, what has become clear is that the 75-percent requirement has had the unintended effect of discouraging the establishment of new manufacturing operations which utilize foreign technology in this country and thus discouraging the creation of new jobs for U.S. workers.

American Motors cannot be considered to be a technological innovator. To be on the cutting edge of automotive technology requires massive resources beyond those available to us. For this reason, our engineering efforts are devoted primarily to the application of technology developed elsewhere. This is the very essence of the manufacturing agreement with Renault.

Being cast in this role is not necessarily an easy way to go, since it usually introduces an added element of leadtime. In other words, it frequently requires additional time to adapt and apply externally developed technology to one's facilities and hence to one's products.

This fact has been recognized in the past. For example, the Clean Air Act Amendments of 1977 provided additional time for small automobile manufacturers, such as American Motors, to meet some of the more stringent and difficult standards.

For this reason, we are requesting a modest change in the law which simply recognizes the facts of life related to commencing a new manufacturing operation in this country, based on foreign technology. It is clearly going to take at least 2 to 3 years from initial start until 75-percent domestic content can be achieved. To this end, we are strongly supporting H.R. 6908.

I must emphasize at this point that the total fleet of cars with which American Motors will be concerned will meet the fuel economy standards established by EPCA for each of the model years through 1985. The performance of this fleet may well be the best of any manufacturer. We do not suggest, nor do we seek, either a change in the fuel economy standards or a means by which those standards may be waived. Such requests would be wholly inconsistent with our efforts to comply with Federal law and to satisfy the demands of the marketplace by manufacturing energy efficient passenger automobiles.

Senate bill S. 2475, as reported out by the Senate Commerce Committee March 6, amends EPCA by extending to 3 years the present 1-year carryforward/carryback provisions related to penalties and credits. In addition, it was proposed that the 75-percent domestic content requirement, which defines a domestic car, be modified by substituting the start of a new manufacturing entity after the December 22, 1975, enactment date of EPCA as the criterion.

American Motors has indicated support for both of these proposals on the grounds that they provide for some much needed flexibility in the law and would tend to promote employment through the encouragement of new manufacturing operations in this country. However, these proposals are not applicable to the solution of American Motors' present problem.

Relying on the provision extending the carryforward/carryback section to 3 years will place American Motors Corp. in an untenable position in the marketplace. Our company is perceived by the public as a builder of smaller size cars that give good gas mileage. During the transitional period while commencing the manufacture of the Renault cars in this country, it would become public knowledge that regardless of the fact that our domestic cars are fully competitive, our corporate average fuel economy would be below the EPCA standards, and that in fact, American Motors was in the position of being assessed a penalty. This would be a severe competitive disadvantage of sufficient magnitude to endanger continued viable volume sales.

The efficacy of this provision presupposes that we will have at a minimum 75-percent domestic content for 1985 model year Renault vehicles produced in our Wisconsin plants. I would like to emphasize that in all our deliberations the 75-percent content level is our target and our plan, but the following must be recognized:

The 75-percent content level is a precise number established by law and any shortfall, regardless of amount, would preclude the use of the carryfoward/carryback provision of the law.

While our plan is to meet the 75-percent domestic content requirement by model year 1985, numerous external factors beyond our control could affect this level and result in the content level being slightly over or slightly under 75 percent. Some examples include: Vehicle pricing assumptions made now and used in the calculation may not be valid later; component sourcing assumptions made now may not be valid later; and fluctuations in international currency exchange rates may be unfavorable.

Should we fail to reach the 75-percent content level by the 1985 model year, we will incur substantial penalties for our domestic vehicle fleet, as illustrated by the table, exhibit II. [See p. 212.] With a shortfall in our 75-percent requirement and with 3-year carryforward/carryback, American Motors would face a penalty assessment of $18.9 million by model year 1985 under the $5 per ⅒-mile-per-gallon penalty provision. Should the penalty rate be increased to $10 per ⅒ mile per gallon, which the Secretary of Transportation has the administrative authority to do, our potential assessment becomes $37.8 million by 1985.

The proposal to substitute a calendar date for the 75-percent domestic content requirement is not applicable to American Motors' problem in view of the way the affiliation with Renault has evolved. As discussed earlier, Renault now has an equity interest in American Motors and thus no new legal corporate identify is involved. As a result, the 75-percent domestic content requirement remains applicable even though the undertaking involves the launching of a new manufacturing operation, requiring time for local sourcing of parts and components.

THE SOLUTION

American Motors strongly recommends favorable consideration of H.R. 6908 by this subcommittee. It is this legislation which provides the relief American Motors needs to meet the Federal fuel economy standards until we can achieve the level of 75-percent domestic content on the Renault passenger cars which we will produce.

Briefly, H.R. 6908 provides that, beginning with the 1981 model year, a domestic manufacturer who commences production of nondomestic automobiles in this country, may include up to 150,000 of these automobiles per year in its domestic CAFE for a period of four model years.

However, to have these vehicles included, they must be at a level of at least 50-percent domestic content and the manufacturer must have submitted an acceptable plan to the Secretary of Transportation showing that these automobiles will be at 75-percent domestic content within the 4 model years.

In addition, the manufacturer may utilize the inclusion for only one 4-year period. Also the manufacturer may not reduce the domestic content on vehicles currently at or above 75 percent at the expense of domestic jobs and continue to include these vehicles in the domestic CAFE. And the manufacturer is entitled to only one 4-year inclusion period.

Likewise, H.R. 6908 will allow American Motors to remain a viable domestic manufacturer and let us give full effect to our agreements with Renault. H.R. 6908 will also have the effect of enhancing domestic employment opportunities. In addition, the end result will be the production of highly fuel-efficient passenger automobiles in this country.

Furthermore, H.R. 6908 encourages the production of new fuel-efficient cars in the United States with U.S. labor rather than abroad with foreign labor.

It should be noted also that the Renault-American Motors manufacturing operation is multinational in nature, thus making it subject to the vagaries of the present and future volatile and tenuous nature of the international economic climate. These conditions make it difficult for a corporation to plan to reach 75-percent domestic content at any date certain, even though it is in its own best interest to reach or exceed this level as soon as possible.

Mr. Chairman, American Motors believes that H.R. 6908 will provide the much needed flexibility in EPCA that is necessary to encourage rational manufacturing of cars based on foreign technology in this country by a domestic manufacturer.

American Motors has gone to great lengths to restructure itself to meet the needs and challenges of the future. With the plans we have made, based on our agreements with Renault, we are confident we can make available to the public highly fuel-efficient cars in the spirit of EPCA. At the same time, we can stabilize employment and create jobs for American citizens. We also believe that our plans will have a net positive effect on our international balance of payments and reduce our dependence on foreign oil.

Enactment of H.R. 6908 will enable us to achieve these goals for the benefit of all Americans. We respectfully and earnestly request your favorable consideration of H.R. 6908 so that our plans and goals for the future may become a reality. Thank you.

[Attachments to Mr. Stucky's prepared statement follow:]

EXHIBIT I

1980 - 1985 AMC CAR FAFE

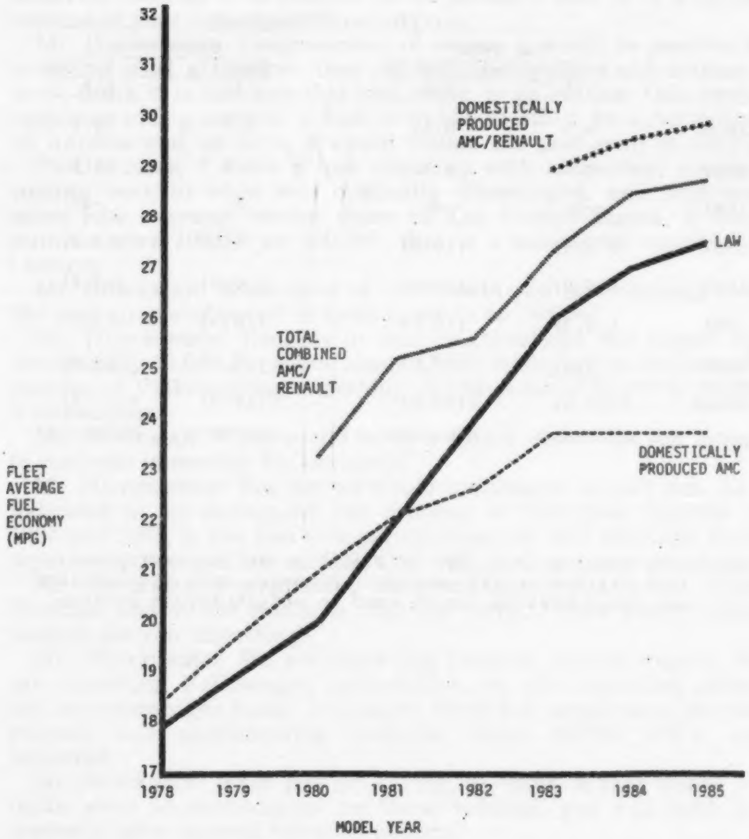


EXHIBIT II

CREDITS/(PENALTY)

CARRYFORWARD/CARRYBACK

(IN $ MILLIONS)

	Carryforward/Carryback			
	One Year		Three Year	
	Penalty Per .1 Mile		Penalty Per .1 Mile	
Model Year	$5	$10	$5	$10
1979	N.A.	N.A.	5.3 (a)	10.6 (a)
1980	N.A.	N.A.	5.8	11.6
1981	-0-	-0-	-0-	-0-
1982	(5.3)	(10.6)	(5.3)	(10.6)
1983	(6.9)	(13.8)	(6.9)	(13.8)
1984	(8.3)	(16.6)	(8.3)	(16.6)
1985	(9.5)	(19.0)	(9.5)	(19.0)
Total	$(30.0)	$(60.0)	$(18.9)	$(37.8)

(a) 1979 Total credits are $6.6 million at $5 penalty and 13.2 million at $10 penalty. However, only $5.3 million and $10.6 million can be used to offset future penalty.

Mr. DINGELL. The subcommittee thanks you. The Chair will now recognize members of the subcommittee for questions. The Chair will recognize the gentleman from Michigan, Mr. Stockman.

Mr. STOCKMAN. I would like to pursue the suggestion I was making before. Would a fixed limit of, say, 100,000 in terms of imported vehicles to be counted as the domestic fleet fit in with the concept of your amendment?

Mr. HUTCHINSON. Congressman, of course, it would be possible to come up with a number that all manufacturers could utilize. I don't think it is the way that you ought to go on this. One of the problems with a number is that it would, in effect, be a restriction on imports and, as such, it would violate the provisions of GATT.

Furthermore, I think if you come up with a number, you are coming back to what was originally discouraged, and that was more jobs overseas versus those in the United States. If your number were 100,000 or 150,000, that is a substantial number of imports.

Mr. STOCKMAN. What level of cars would you be importing over the next couple of years? It looks to me to be 100,000.

Mr. HUTCHINSON. Roughly in that neighborhood. We import approximately 15,000 Porsches, about 45,000 Audis and a comparable number of Volkswagens, something on the order of 50,000 to 60,000 Volkswagens.

Mr. STOCKMAN. What would be your future plans? Do you intend to continue importing Volkswagens?

Mr. HUTCHINSON. Yes, sir; we would continue to import cars. As I indicated in my statement, the problem is that these imports in 1984 and 1985, if you had to separate those out and calculate them separately, you get into a difficulty with fuel economy standards.

Mr. STOCKMAN. I understand that; but that is due to the 15,000 Porsches and 40,000 Audis, is that not correct? How many Volkswagens are you importing?

Mr. HUTCHINSON. We are importing Dashers, station wagons, we are importing Volkswagen convertibles, we are importing seven- and nine-passenger buses. You know, these are larger cars—station wagons and specialty-type vehicles about 60,000 VW's are imported.

Mr. STOCKMAN. What you are saying, in effect, is that unless we make some accommodation for these vehicles, you will hold the domestic labor content below 75 percent?

Mr. HUTCHINSON. This is our solution to live under the current law. You were not present, Congressman, when I put forth another proposal that you and I have discussed very briefly in the past. Just to refresh your recollection, there is another way to get at this that would be even-handed and, I think, would suit the principles of the competitors that were raised here this morning.

You could allow any manufacturer to average his imports with his domestic cars provided the result that you get is greater. In other words, if the domestic fleet boosts the fuel economy average, let any manufacturer average them together. Then you would not have to worry about the numbers. You would create jobs in the United States. You would also encourage production of fuel-efficient cars here. This would be an even-handed approach that would get around the problem of GATT and get around the problem of jobs going overseas.

Mr. Stockman. What you are saying is, so long as the combined average is at a higher level than the domestic CAFE taken in isolation?

Mr. Hutchinson. Sure.

Mr. Stockman. That sounds even-handed but as a matter of application to one company; would that not be the case?

Mr. Hutchinson. It is an even-handed principle.

Mr. Stockman. That is something to consider. Thank you.

Mr. Dingell. The Chair recognizes now my good friend and colleague from Indiana.

Mr. Sharp. Thank you, Mr. Chairman. Mr. Stucky, could you explain to us why expanding the carry-over/carry-back to 3 years rather than the present 1-year law will not meet your requirement?

Mr. Stucky. We have a unique problem, I think, that underlies the response and I will point that out and then respond. That is, when we drop below the fuel economy law in the 1982 time frame, we stay below as long as you wish to go with the Spirit and the Concord product lines, and those are the ones we are talking about.

The benefit of carry-forward/carry-back from 1 year to 3 years is to stair-step and be able to be above or below the standard as you progress along year to year. Obviously, 3 years is an improvement versus the 1 year. So our underlying condition is different from that of someone who will be moving up the ladder.

This results in two serious problems for us. One is a planning problem and one is a marketing problem. As you look at the planning problem, we feel that there is no way you can go into a corporate long-term product plan in the 1983-87 kind of time frame, knowing that you are planning well under the legal standard, whether it be whatever sanctions or whatever may be the problem. We would be in the position of planning in violation of the law. We think there is no way you can do that in prudent business.

Second, there are the market implications. Over the years, American Motors has been recognized as a builder of fuel-efficient cars. As we conduct our surveys, as we read how our customers identify with us, we are at the top of the list consistently as the maker of highly fuel-efficient vehicles. It is something that dates back many, many years.

What would happen here is that we would be identified now as the manufacturer who does not meet the standard and each year gets progressively worse. From a marketing point of view and recognizing where we come from as a corporation, that would create a most difficult marketing condition and one that we are convinced we could not work our way around.

Those are the two fundamental reasons why we certainly do not object to the 3-year carry-forward/carry-back, not at all, thus providing an element of flexibility. But when you try to apply it to our unique situation, it does not give the kind of solution that we feel is critical.

Then we superimpose on that the fact that vehicles that are going through our distribution system and will be marketed by American Motors dealers taken on a fleet average basis do, in fact, meet the standard. As an aside, if you will, that is the fact that we will be marketing very fuel-efficient product lines.

Mr. **Sharp**. On your chart, if I understand correctly, the top line is where you plan to be in 1983 regardless of whether we pass this or not. Is that correct?

Mr. **Stucky**. That is correct.

Mr. **Sharp**. That is what you will have; that is your line of planning?

Mr. **Stucky**. Correct.

Mr. **Sharp**. I am just eyeballing it here, but it looks to me that you have a credit during the model year 1980–81 which is a little bit less than what you are going to miss in your schedule here in the 1981–82 year, and then in 1982–83 you have a deficit which appears by the chart to be less than the credit that you will have in 1983-84.

My point is, without having the statistics on the chart to back it up, just from eyeballing the chart, it would appear that carry-forward/carry-back would more than cover you if, in fact, you are going to meet what you are indicating for 1983; it would mean that from 1981 until 1983 technically you would be in deficit; but it appears that, because of 1981, you would be ahead of the game from 1980 and be behind the game in 1983 but making it up in 1984, that you would not incur any penalties whatsoever under the provision.

Mr. **Stucky**. One of the discussions that has come in would be that by 1985–86, with the 75-percent content on the new Renault vehicles, you can use the credit from that to go backward and therefore wash out the penalties during the 1983-84 time frame, and I agree with that.

The point I was trying to make is that probably the financial penalties in the end may not be the biggest single issue. Yes, there will be several millions of dollars; it could be $5 million, depending on how the mix would turn out, assuming we made the 75 percent in 1985.

The problem is that, as a corporation, as we move further below the fuel economy standard and the marketing problem that creates for us, we don't think we need to worry that much; by the time we get to 1985, even though the cars we are talking about, the Spirit-Concord line, will be competitive, they will be identified in the marketplace as fuel-efficient vehicles.

Mr. **Sharp**. Of course, there will be the EPA disclosure sheet. I realize that you people do have a benefit you are advertising now that you just seem to be fuel-efficient, so maybe that gives you a leg up when the citizen goes to shop around among the makers.

But in reality, if you are correct, the line of cars you will be selling will still be listed there and will be listed as competitive; some the Government will count as imports and some it will count as domestically produced.

If the Government is no longer fingering you as engaging in unlawful activity as a part of the change, I am not sure where the real loss is. I am sure you might want to avoid that, but I have great difficulty translating that if, in fact, you understand, investors understand and the Government understands that according to the planning schedules, you have no problem with the Government.

Unless one of your competitors advertises that your corporation is somehow undermining America's effort at fuel economy, I am not sure that I see the danger to you what would require us to write a special exemption in the law.

Mr. Stucky. We have discussed that at length. Where we came down and came down very solidly at the company is that, yes, in the real world, the marketplace at point of sale, that will be a serious problem.

I understand very well the argument you are developing, because, yes, they are in labels, they are in books, and they are in individual cars. Setting that aside, you come back to what is the image of the company and what kind of product does the company really get identified with.

That is something that evolves over time and it is something that may change. It is not a single issue, but it is an image and an attitude. That is the one that we have to worry about. We ended up being very much concerned about it.

Mr. Dingell. Would the gentleman yield?

Mr. Sharp. I will be happy to yield.

Mr. Dingell. If I read the comments of my colleague from Indiana correctly and your responses, his questions and your responses indicate to me that there is no need for anything other than the carry-forward and carry-back for American Motors except to address the cosmetic question of marketing strategy and whether or not the automobile involved or certain lines of automobiles to be manufactured by your company would, in point of fact, be fuel-efficient vehicles. Am I correct?

Mr. Stucky. There is one assumption in that statement and my response which is very important—that is, if the assumption was that we were at 75-percent content on the new Renault vehicles in 1985, and we probably won't be; it will be more likely 1986 at the earliest that we can be at 75 percent.

Why that is significant is because at that point there would be domestic vehicles and we would move backward to eliminate the penalties to 1983 and 1984. So we still will incur penalties under the 3-year carry-forward and carry-back, but they would be reduced. That is the point I was wishing to make, that they would be reduced from the level they could be.

Mr. Dingell. What is that level again, please?

Mr. Stucky. It would be in the range of $8 to $12 million.

Mr. Dingell. It would be reduced, I think you indicated, on the order of two to three.

Mr. Stucky. No; that is what it would be reduced to. Without any reduction, it is $19 million. It is a number that I have on the chart. Without any reduction for the carry-back, it is $19 million. By reaching the 75-percent content in 1985 and 1986, it could be reduced in the range of $8 million. So that still would result in a penalty but a reduced penalty.

Mr. Dingell. The Chair thanks the gentleman.

Mr. Sharp. Thank you, Mr. Chairman. I will ask a couple of other questions. I want to ask you, Mr. Hutchinson, about your statement about where you stand with a 60-miles-per-gallon car and where you stand with a 70-miles-per-gallon car. Will you help me appreciate how soon that one or both of those will be readily available to me and what kind of car that is?

Mr. Hutchinson. The 60-miles-per-gallon car is something called the IRVW—integrated research Volkswagen. It was developed in concert with the Department of Transportation. The Department had a contract with us for some of the work. The vehicle is designed to meet or exceed the 1985 emission standard, the 1985 safety standard, and the 1985 fuel economy standard.

The vehicle is hand-built. It is not something that you will be able to purchase soon. However, as with all research cars, we are phasing portions of that vehicle into our production. For example, that car has a passive restraint system which we have incorporated into our standard Rabbit which you can purchase in your showroom.

The vehicle has a diesel engine, albeit, it is turbocharged. You can buy the diesel Rabbit today and we have turbochargers on some of the other types of vehicles. A portion of the vehicles in both the safety and fuel economy areas especially will be phased in over a period of years.

Mr. Sharp. That is the 60-miles-per-gallon car?

Mr. Hutchinson. Yes. The 70-miles-per-gallon car is strictly a research vehicle. It is a very exciting vehicle. Basically what happens is that when you stop at a stop sign, it cuts off, and it starts again instantly. If you let up on the accelerator once you have met highway speed, it goes back to the old free-wheeling concept, where it promotes fuel economy by putting the engine back to idle. Once you press on the accelerator, away it goes again.

Mr. Sharp. On that 60-miles-per-gallon car, are we going to see a continual ratcheting up, 45, 50, 55 and finally reaching that 60, and there will be a large number of cars being sold? Are we talking about 2 years? Are we talking about 6 years?

Mr. Hutchinson. I think if we see where we are today with the diesel Rabbit, we have one version of the diesel Rabbit that gets over 50 miles per gallon on the highway. The IRVW has a highway average of something on the order of 69 mpg. We are continually trying to improve the fuel economy. We hope that we will stay on top of the heap. But it is a specially built research vehicle. It is not something that is intended for mass production in the foreseeable future.

Mr. Sharp. Would it take a fair amount of investment in order to actually do the kind of thing—the technology is questionable?

Mr. Hutchinson. It is a demonstration car. It was intended to demonstrate what can be done, what the state of the art is. Naturally we hope to incorporate in our production vehicles, as soon as possible, when the market conditions exist, the various features that we have developed in the IRVW.

Mr. Sharp. Do you expect it to be very much more expensive?

Mr. Hutchinson. All of these things tend to be more expensive. Part of Volkswagen of America's problem and one of the reasons why we have located in the United States is to try to get a handle on prices. As you may know, the Volkswagen Rabbit is at the very top of the price heap in terms of car purchases. Our vehicles are $1,500 to $2,000 over the competition. So we are rather sensitive about our having more technology, expensive innovations, which could, you know, price us out of the market eventually.

Mr. SHARP. You came to this country to reduce cost, primarily transportation cost?

Mr. HUTCHINSON. I have a chart with my testimony that shows Volkswagen sales from 1970 to 1980. If you look at the chart—it is the second chart—it shows a drastic drop in Volkswagens imported between 1970 and 1980.

The reason for this is primarily the dollar—D mark relationship. Our cars become so expensive. For example, in 1970 a Beetle cost under $2,000. When it went out of production, in 1974-75, it was nearly $3,500. Therefore, we either had to give up the market or we had to build cars here.

As you can see, we started U.S. production in 1978 in order to get the economies of this marketplace, labor, to reduce the long transportation costs and so forth.

Mr. SHARP. You did not feel that American labor then was something that would keep you out of coming into the market?

Mr. HUTCHINSON. It was surprising to me but when I looked at the labor figures, American auto labor is very competitive; in fact, it is cheaper than the European counterpart. When you compare the salary of a German auto worker, I believe the hourly wage is something in the range of $14; in the United States it is around $13. So there is an advantage from a wage standpoint in locating in the United States.

Mr. SHARP. How about the general work habits? What is your impression of American labor?

Mr. HUTCHINSON. We were at first concerned. We know that if we could not maintain the quality of the vehicles, if the customer perceives some sort of difference between an imported car and a domestically built car, then obviously we would be in grave difficulty. We are very pleased with the caliber of American workers. We think the quality of our vehicles is comparable to those built in Germany. The short answer to your question is: So far we have no problem.

Mr. SHARP. You obviously aren't in the business of comparing American wage rates to Japanese. I wonder if you know that information, how we stack up in this country versus labor costs in Japan?

Mr. HUTCHINSON. It is the reverse of the situation. I will be happy to supply some information for the record which I have, which compares the wage costs in Japan, in Germany, in the United States, and in Italy. You can see where all of the countries stand.

Mr. DINGELL. Would you submit that?

Mr. HUTCHINSON. Yes, sir.

[Testimony resumes on p. 225.]

[The information referred to follows:]

ESTIMATED HOURLY COMPENSATION OF PRODUCTION WORKERS IN THE MOTOR VEHICLES AND EQUIPMENT INDUSTRIES, 14 COUNTRIES, MID-YEAR 1979

(PROVISIONAL ESTIMATES)

COUNTRY	EXCHANGE RATE (1)		AVERAGE HOURLY EARNINGS IN NATIONAL CURRENCY	RATIO OF ADDITIONAL COMPENSATION TO HOURLY EARNINGS	HOURLY COMPENSATION		
	NATIONAL CURRENCY UNIT	NATIONAL CURRENCY UNITS PER U.S. DOLLAR			NATIONAL CURRENCY	U.S. DOLLARS	INDEX U.S.=100
UNITED STATES	DOLLAR	-----	9.11	50.6	13.72	13.72	100
CANADA	DOLLAR	1.171	8.50	30.3	11.08	9.46	69
BRAZIL(2)	CRUZEIRO	(3)25.88	52.43	(4)25.0	65.54	2.53	18
MEXICO	PESO	22.82	(5)58.83	51.7	89.25	3.91	28
JAPAN	YEN	218.2	1,300	(6)14.9	1,494	6.85	50
KOREA(7)	WON	484.0	649	15-20	(8)765	1.58	12
BELGIUM	FRANC	29.33	226.2	69.3	383.0	13.06	95
FRANCE	FRANC	4.255	21.01	81.7	38.18	8.97	65
GERMANY	MARK	1.833	14.54	77.1	25.75	14.05	102
ITALY	LIRA	830.9	3,180	106.4	6,564	7.90	58
NETHERLANDS	GUILDER	2.006	12.92	(9)85.4	23.95	11.94	87
SPAIN(10)	PESETA	67.13	355	(9)40.0	496	7.39	--
SWEDEN	KRONA	4.288	30.65	60.4	49.16	11.46	84
UNITED KINGDOM	PENCE	47.12	228.1	31.3	299.5	6.36	46

(1) ANNUAL AVERAGE EXCHANGE RATE EXCEPT FOR BRAZIL.
(2) ESTIMATED ON THE BASIS OF 1974 HOURLY EARNINGS--DERIVED FROM ANNUAL EARNINGS BY ASSUMING 2080 HOURS OF WORK PER YEAR--AND THE AVERAGE EARNINGS TREND IN ALL INDUSTRY SINCE 1974.
(3) MID-YEAR EXCHANGE RATE.
(4) ALL MANUFACTURING.
(5) ESTIMATED ON THE BASIS OF 1977 MOTOR VEHICLE EARNINGS AND THE HOURLY EARNINGS TREND IN ALL MANUFACTURING SINCE 1977.
(6) TRANSPORTATION EQUIPMENT INDUSTRIES, ALL EMPLOYEES.
(7) EARNINGS IN MOTOR VEHICLE INDUSTRIES ESTIMATED ON THE BASIS OF AVERAGE HOURLY EARNINGS FOR ALL EMPLOYEES IN TRANSPORTATION EQUIPMENT INDUSTRIES ADJUSTED FOR THE RELATIVE LEVEL OF PRODUCTION WORKER MOTOR VEHICLE EARNINGS TO ALL EMPLOYEE TRANSPORTATION EQUIPMENT EARNINGS IN 1976.
(8) MID-POINT OF ESTIMATED AVERAGE COMPENSATION RANGE.
(9) ALL EMPLOYEES.
(10) TRANSPORTATION EQUIPMENT. EARNINGS ARE ESTIMATED ON THE BASIS OF 1978 TRANSPORTATION EQUIPMENT EARNINGS AND THE HOURLY EARNINGS TREND IN THE TOTAL PRIVATE NONFARM ECONOMY SINCE 1978.

FOR CONCEPTS AND METHODS, SEE ATTACHED GENERAL NOTE.

PREPARED BY: U.S. DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS, OFFICE OF PRODUCTIVITY AND TECHNOLOGY, FEBRUARY 1980.

ESTIMATED HOURLY COMPENSATION OF PRODUCTION WORKERS IN THE MOTOR VEHICLES AND EQUIPMENT INDUSTRIES, 14 COUNTRIES, 1978

(PRELIMINARY ESTIMATES)

COUNTRY	EXCHANGE RATE		AVERAGE HOURLY EARNINGS IN NATIONAL CURRENCY	RATIO OF ADDITIONAL COMPENSATION TO HOURLY EARNINGS	HOURLY COMPENSATION		
	NATIONAL CURRENCY UNIT	NATIONAL CURRENCY UNITS PER U.S. DOLLAR			NATIONAL CURRENCY	U.S. DOLLARS	INDEX U.S.=100
UNITED STATES	DOLLAR	-----	8.51	48.8	12.66	12.66	100
CANADA	DOLLAR	1.140	8.06	30.0	10.48	9.19	73
BRAZIL(1)	CRUZEIRO	18.07	33.91	(2)25.0	42.39	2.35	19
MEXICO	PESO	22.77	(3)50.84	51.7	77.12	3.39	27
JAPAN	YEN	208.4	1,211	(4)14.9	1,391	6.68	53
KOREA(5)	WON	484.0	560	15-20	(6)658	1.32	10
BELGIUM	FRANC	31.44	212.8	69.2	360.1	11.45	90
FRANCE	FRANC	4.501	18.75	79.4	33.64	7.47	59
GERMANY	MARK	2.005	13.62	73.3	23.60	11.77	93
ITALY	LIRA	848.8	2,765	106.5	5,660	6.68	53
NETHERLANDS	GUILDER	2.161	12.32	(7)80.6	22.25	10.30	81
SPAIN(8)	PESETA	76.49	276	(2)40.0	385	5.03	--
SWEDEN	KRONA	4.517	28.36	56.1	44.27	9.80	77
UNITED KINGDOM	PENCE	52.13	194.8	29.8	252.9	4.85	38

(1) ESTIMATED ON THE BASIS OF 1974 HOURLY EARNINGS--DERIVED FROM ANNUAL EARNINGS BY ASSUMING 2068 HOURS OF WORK PER YEAR--AND THE AVERAGE EARNINGS TREND IN ALL INDUSTRY SINCE 1974.
(2) ALL MANUFACTURING.
(3) ESTIMATED ON THE BASIS OF 1977 MOTOR VEHICLE EARNINGS AND THE HOURLY EARNINGS TREND IN ALL MANUFACTURING SINCE 1977.
(4) TRANSPORTATION EQUIPMENT INDUSTRIES. ALL EMPLOYEES.
(5) EARNINGS IN MOTOR VEHICLE INDUSTRIES ESTIMATED ON THE BASIS OF AVERAGE HOURLY EARNINGS FOR ALL EMPLOYEES IN TRANSPORTATION EQUIPMENT INDUSTRIES ADJUSTED FOR THE RELATIVE LEVEL OF PRODUCTION WORKER MOTOR VEHICLE EARNINGS TO ALL EMPLOYEE TRANSPORTATION EQUIPMENT EARNINGS IN 1976.
(6) MID-POINT OF ESTIMATED AVERAGE COMPENSATION RANGE.
(7) ALL EMPLOYEES.
(8) TRANSPORTATION EQUIPMENT.

FOR CONCEPTS AND METHODS, SEE ATTACHED GENERAL NOTE.

PREPARED BY: U.S. DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS, OFFICE OF PRODUCTIVITY AND TECHNOLOGY, FEBRUARY 1980.

ESTIMATED HOURLY COMPENSATION OF PRODUCTION WORKERS IN THE MOTOR VEHICLES AND EQUIPMENT INDUSTRIES, 14 COUNTRIES, 1977

COUNTRY	EXCHANGE RATE		AVERAGE HOURLY EARNINGS IN NATIONAL CURRENCY	RATIO OF ADDITIONAL COMPENSATION TO HOURLY EARNINGS	HOURLY COMPENSATION		
	NATIONAL CURRENCY UNIT	NATIONAL CURRENCY UNITS PER U.S. DOLLAR			NATIONAL CURRENCY	U.S. DOLLARS	INDEX U.S.=100
UNITED STATES	DOLLAR	-----	7.86	47.7	11.61	11.61	100
CANADA	DOLLAR	1.063	7.51	29.3	9.71	9.13	79
BRAZIL(1)	CRUZEIRO	14.14	23.27	(2)25.0	29.09	2.06	18
MEXICO	PESO	22.57	44.12	49.5	65.96	2.92	25
JAPAN	YEN	267.8	1,123	(3)14.9	1,290	4.82	42
KOREA(4)	WON	484.0	417	15-20	(5)490	1.01	9
BELGIUM	FRANC	35.83	202.0	68.6	340.6	9.51	82
FRANCE	FRANC	4.915	16.89	78.2	30.10	6.12	53
GERMANY	MARK	2.321	13.01	72.5	22.44	9.67	83
ITALY	LIRA	882.8	2,382	107.2	4,936	5.59	48
NETHERLANDS	GUILDER	2.458	11.44	(6)79.8	20.57	8.38	72
SPAIN(7)	PESETA	75.26	229	(2)45.0	331	4.40	--
SWEDEN	KRONA	4.468	25.98	54.9	40.24	9.01	78
UNITED KINGDOM	PENCE	57.31	173.6	29.1	224.1	3.91	34

(1) ESTIMATED ON THE BASIS OF 1974 HOURLY EARNINGS--DERIVED FROM ANNUAL EARNINGS BY ASSUMING 2080 HOURS OF WORK PER YEAR--AND THE AVERAGE EARNINGS TREND IN ALL INDUSTRY SINCE 1974.

(2) ALL MANUFACTURING.

(3) TRANSPORTATION EQUIPMENT INDUSTRIES. ALL EMPLOYEES.

(4) EARNINGS IN MOTOR VEHICLE INDUSTRIES ESTIMATED ON THE BASIS OF AVERAGE HOURLY EARNINGS FOR ALL EMPLOYEES IN TRANSPORTATION EQUIPMENT INDUSTRIES ADJUSTED FOR THE RELATIVE LEVEL OF PRODUCTION WORKER MOTOR VEHICLE EARNINGS TO ALL EMPLOYEE TRANSPORTATION EQUIPMENT EARNINGS IN 1976.

(5) MID-POINT OF ESTIMATED AVERAGE COMPENSATION RANGE.

(6) ALL EMPLOYEES.

(7) TRANSPORTATION EQUIPMENT.

FOR CONCEPTS AND METHODS, SEE ATTACHED GENERAL NOTE.

PREPARED BY: U.S. DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS, OFFICE OF PRODUCTIVITY AND TECHNOLOGY, FEBRUARY 1980.

ESTIMATED HOURLY COMPENSATION OF PRODUCTION WORKERS IN THE MOTOR VEHICLES AND EQUIPMENT INDUSTRIES, 13 COUNTRIES, 1976

COUNTRY	EXCHANGE RATE		AVERAGE HOURLY EARNINGS IN NATIONAL CURRENCY	RATIO OF ADDITIONAL COMPEN-SATION TO HOURLY EARNINGS	HOURLY COMPENSATION		
	NATIONAL CURRENCY UNIT	NATIONAL CURRENCY UNITS PER U.S. DOLLAR			NATIONAL CURRENCY	U.S. DOLLARS	INDEX U.S.=100
UNITED STATES	DOLLAR	-----	7.09	46.3	10.37	10.37	100
CANADA	DOLLAR	.9861	6.74	28.4	8.65	8.77	85
BRAZIL(1)	CRUZEIRO	10.68	15.56	(2)25.0	19.45	1.82	18
MEXICO	PESO	15.43	31.64	53.9	48.69	3.16	30
JAPAN	YEN	296.4	1,043	(3)14.3	1,192	4.02	39
KOREA(4)	WON	484.0	262	15-20	(5)307	.63	6
BELGIUM	FRANC	38.58	186.9	68.0	313.9	8.14	78
FRANCE	FRANC	4.775	14.82	76.0	26.08	5.46	53
GERMANY	MARK	2.517	12.04	70.0	20.47	8.13	78
ITALY	LIRA	830.3	1,953	109.6	4,093	4.93	48
NETHERLANDS	GUILDER	2.642	10.48	(6)80.1	18.87	7.14	69
SWEDEN	KRONA	4.356	24.79	48.3	36.76	8.44	81
UNITED KINGDOM	PENCE	55.41	163.0	27.4	207.7	3.75	36

(1) ESTIMATED ON THE BASIS OF 1974 HOURLY EARNINGS--DERIVED FROM ANNUAL EARNINGS BY ASSUMING 2080 HOURS OF WORK PER YEAR--AND THE AVERAGE EARNINGS TREND IN ALL INDUSTRY SINCE 1974.

(2) ALL MANUFACTURING.

(3) TRANSPORTATION EQUIPMENT INDUSTRIES, ALL EMPLOYEES.

(4) EARNINGS IN MOTOR VEHICLE INDUSTRIES ESTIMATED ON THE BASIS OF AVERAGE HOURLY EARNINGS FOR ALL EMPLOYEES IN TRANSPORTATION EQUIPMENT INDUSTRIES ADJUSTED FOR THE RELATIVE LEVEL OF PRODUCTION WORKER MOTOR VEHICLE EARNINGS TO ALL EMPLOYEE TRANSPORTATION EQUIPMENT EARNINGS IN 1976.

(5) MID-POINT OF ESTIMATED AVERAGE COMPENSATION RANGE.

(6) ALL EMPLOYEES

FOR CONCEPTS AND METHODS, SEE ATTACHED GENERAL NOTE.

PREPARED BY: U.S. DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS, OFFICE OF PRODUCTIVITY AND TECHNOLOGY, FEBRUARY 1980.

ESTIMATED HOURLY COMPENSATION OF PRODUCTION WORKERS IN THE MOTOR VEHICLES
AND EQUIPMENT INDUSTRIES, 13 COUNTRIES, 1975

COUNTRY	EXCHANGE RATE		AVERAGE HOURLY EARNINGS IN NATIONAL CURRENCY	RATIO OF ADDITIONAL COMPENSATION TO HOURLY EARNINGS	HOURLY COMPENSATION		
	NATIONAL CURRENCY UNIT	NATIONAL CURRENCY UNITS PER U.S. DOLLAR			NATIONAL CURRENCY	U.S. DOLLARS	INDEX U.S.=100
UNITED STATES	DOLLAR	-----	6.44	49.0	9.60	9.60	100
CANADA	DOLLAR	1.017	5.95	28.3	7.63	7.50	78
BRAZIL(1)	CRUZEIRO	8.129	10.36	(2)25.0	12.95	1.59	17
MEXICO	PESO	12.50	24.99	47.4	36.84	2.95	31
JAPAN	YEN	296.7	932	(3)13.3	1,056	3.56	37
KOREA(4)	WON	484.0	207	15-20	(5)244	.50	5
BELGIUM	FRANC	36.69	166.3	67.2	278.0	7.58	79
FRANCE	FRANC	4.282	12.85	74.0	22.37	5.22	54
GERMANY	MARK	2.455	11.35	66.4	18.89	7.69	80
ITALY	LIRA	652.4	1,573	111.8	3,332	5.11	53
NETHERLANDS	GUILDER	2.523	9.59	(6)79.7	17.23	6.83	71
SWEDEN	KRONA	4.142	21.14	45.8	30.82	7.44	78
UNITED KINGDOM	PENCE	45.01	140.5	26.5	177.7	3.95	41

(1) ESTIMATED ON THE BASIS OF 1974 HOURLY EARNINGS--DERIVED FROM ANNUAL EARNINGS BY ASSUMING 2040 HOURS OF WORK PER YEAR--AND THE AVERAGE EARNINGS TREND IN ALL INDUSTRY SINCE 1974.

(2) ALL MANUFACTURING.

(3) TRANSPORTATION EQUIPMENT INDUSTRIES. ALL EMPLOYEES.

(4) EARNINGS IN MOTOR VEHICLE INDUSTRIES ESTIMATED ON THE BASIS OF AVERAGE HOURLY EARNINGS FOR ALL EMPLOYEES IN TRANSPORTATION EQUIPMENT INDUSTRIES ADJUSTED FOR THE RELATIVE LEVEL OF PRODUCTION WORKER MOTOR VEHICLE EARNINGS TO ALL EMPLOYEE TRANSPORTATION EQUIPMENT EARNINGS IN 1975.

(5) MID-POINT OF ESTIMATED AVERAGE COMPENSATION RANGE.

(6) ALL EMPLOYEES.

FOR CONCEPTS AND METHODS, SEE ATTACHED GENERAL NOTE.

PREPARED BY: U.S. DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS, OFFICE OF PRODUCTIVITY AND TECHNOLOGY, FEBRUARY 1980.

General Note on Estimates of Hourly Compensation for Production Workers in Manufacturing Industries

Hourly compensation includes all direct payments made to the worker (pay for time worked, pay for vacations, holidays and other leave, all bonuses, and the cost of payments in kind), before payroll deductions of any kind, plus employer expenditures for legally-required insurance programs and contractual and private plans for the benefit of employees. In addition, compensation includes other taxes on payrolls or employment, even if they are not for the direct benefit of employees, because such taxes are regarded as labor costs. However, hourly compensation does not include all items of labor costs. The costs of recruitment and training, and plant facilities and services--such as cafeterias, medical clinics, and employee parking-- are not covered because data are not available for all countries. For consistency, compensation is estimated on an hours-worked basis for every country.

Hourly compensation provides a better basis for international comparisons of labor costs than the earnings statistics which are regularly published by most countries. Average hourly earnings do not include all items of labor compensation, nor do they include the same items of compensation in each country. Earnings generally include basic time and piece rates plus overtime premiums, shift differentials, other bonuses and premiums paid regularly each pay period, and cost-of-living adjustments. In some countries, earnings also include pay for time not worked (holiday, vacation, and other leave pay), bonuses not paid regularly each pay period, private or contractual family allowances paid by the employer, and the cost of payments in kind. Earnings are usually computed per hour worked if they exclude pay for time not worked and per hour paid if they include pay for time not worked. For some countries, however, earnings include pay for time not worked and are computed per hour worked. For all countries, earnings refer to gross payments made to the worker before payroll deductions of any kind--e.g., for taxes, social security, insurance, savings plans, or union dues.

The average hourly earnings figures shown in the tables have not been adjusted for differences in earnings definitions. However, the statistics for some countries have been adjusted, where possible, to account for major differences in worker coverage; differences in industrial classification systems; and changes over time in survey coverage, sample benchmarks, or frequency of surveys. The estimates, therefore, may not coincide with data originally published abroad.

Total compensation is estimated by adjusting average hourly earnings for items of direct pay not included in earnings and for employer expenditures for social security, contractual and private insurance programs, and other labor taxes. For the United States and other countries that measure earnings on an hours-paid basis, the figures are also adjusted in order to approximate compensation per hour worked. Adjustment factors are obtained primarily from periodic labor cost surveys and interpolated or projected to non-survey years on the basis of other available information; or they are obtained from censuses of manufactures or reports on social security and fringe benefits systems. Because compensation is partly estimated, the statistics should not be considered as precise measures of comparative compensation costs.

Hourly compensation is converted to U.S. dollars using the average daily exchange rate for the reference period. Changes in hourly compensation in U.S. dollars from one period to another are therefore affected by changes in currency exchange rates as well as by changes in compensation.

Hourly compensation in U.S. dollars indicates comparative levels of employer labor costs. However, because compensation includes more than current labor income of workers and because prices of goods and services vary greatly among countries, it does not indicate relative living standards of workers.

U.S. Department of Labor, Bureau of Labor Statistics, Office of Productivity and Technology.

Mr. **Sharp**. Could you give us an overview picture of that?

Mr. **Hutchinson**. I think it is $6 to $7 less than the United States in Japan.

Mr. **Dingell**. Does that count fringes and other things?

Mr. **Hutchinson**. These were the direct comparisons between the average wage, the fringe benefits, including vacation, hospitalization and so forth. These are included in the figures. So you get a fair appreciation of what the total wage expenses in one country versus another are.

Mr. **Sharp**. One of the reasons I mentioned the 60-mile-per-gallon cars, so often at home—I am sure it is the experience of us here—when there is publicity about one of these models, research models particularly, there is an immediate assumption by a lot of people that "We ought to be able to go out and buy that. Why isn't Detroit building it? Why isn't Japan or the United States building that?"

While I think I can usually explain why I think that is the case, the assumption is very widespread, I find, among constituents that somebody is trying to prevent these cars from coming onto the market, and somehow it is not in the economic interest of GM or somebody else to, in fact, build these kinds of cars.

Mr. **Stockman**. Mr. Hutchinson, can you tell us what the performance characteristics of that innovative vehicle would be in terms of passenger space, total capacity, horsepowers and acceleration rate?

Mr. **Hutchinson**. I will be happy to supply a fact sheet for the record which has all that information. It is a four-passenger vehicle; zero to 60-mile performance is in the order of 13.5 seconds. This is a diesel engine, five-speed transmission.

Mr. **Sharp**. I don't think in those terms all the time. Could you compare that to something on the market that will give me some sense? Is that speedier or less?

Mr. **Hutchinson**. That is a little speedier than the diesel Rabbit that we market today. It is a very peppy car. The heavier diesels have acceleration of something in the order of 18 to 19 seconds for zero to 60.

It meets the experimental safety vehicle performance standards at 40 miles per hour crashworthiness. It meets the emission standards. It has a 1.5 NO_x. It meets the particulate standard proposed by EPA.

Mr. **Stockman**. What is the horsepower?

Mr. **Hutchinson**. I believe the horsepower is 70, but I would have to check that and supply it for the record.

Mr. **Stockman**. So you really could not tow very much with it?

Mr. **Hutchinson**. No, sir. It would not be designed to tow a horse-trailer or something in that order. This is a car that has a curb weight of about 2,000 pounds, which is comparable to the Rabbit that we produce now.

Mr. **Stockman**. Thank you.

Mr. **Sharp**. I don't mean to give more time to Volkswagen and talk to their future plans. I hoped to get some sense of where we are headed and how we are going to compete in terms of car sales.

Of course, Checker is not in the same business but, Mr. Stucky, there is some discussion in the Senate, for example, about perhaps we should now set even higher targets beyond 1985. I wonder if you can give us any sense of where you see we are heading? You have already done that to some degree.

Mr. **Stucky**. I don't have specific numbers that go beyond 1985, so I think it would be a mistake to just sit here and project numbers.

If you will look at the chart, we would fully expect with what we are building, we have projections to build, we will be above 27.5 by 1985.

Mr. **Sharp**. What kind of high efficiency models will be in that mix? Could you give us some sense of that? Are we talking about cars with 35, 40, 45, or 50 miles per gallon? What is it at the top of the line in terms of fuel efficiency?

Mr. **Stucky**. Thirty-five for the front-wheel drive, light weight vehicles, four passengers, as we were talking, very competitive kinds of products for that era.

Now, with the steadily increasing cost in gasoline, what we have seen in the last year to 18 months is a tremendous marketing pressure for us to move that number as fast as we can to as high as we can.

That is the other side of the argument, of course, to mandating the standard of whether it ought to be 30, 32, or 35. We will be doing all we can to the mid-1980 time frame to get that number just as high as we can for plain and simple marketing reasons. It is extremely effective at this point.

I don't think I see any indications that that is going to change. I don't know what it would be that would change the pressures now, particularly now that many people are much more in tune with the kind of car that has to be built to get that kind of fuel economy.

There was a major change in automotive buying habits to be satisfied with these kinds of vehicles. It is happening very rapidly. We saw the problem a few years back, of trying to force a mix, trying to force product that was very difficult to sell.

So you really can't lose sight of the importance of the market being in tune with these vehicles, and fuel economy, there is no question, is No. 1.

I did not answer the base question, I know, of what is the number, other than, clearly, it is going to go up at a rapid rate.

Mr. **Stockman**. I appreciate the gentleman's yielding. I would like to pursue this matter further.

On the AMC figures for 1985, it looks like if you include the Renaults, you have a fleetwide average of about 29. That is only compacts and subcompacts you will be marketing as passenger cars; is that correct?

Mr. **Stucky**. Yes, sir, everything will be compact or below. It is not even half compact.

Mr. **Stockman**. If you were marketing what would be considered a full spectrum of passenger cars, intermediates and even some full-size cars with major technological improvements, the number would be substantially lower if you were still in that business?

Mr. **Stucky**. If you had a substantial mix of large cars, yes, that is correct.

Mr. **Stockman**. If you had any intermediates or large-size cars in here, it would bring down the number, because that is all compact and subcompact?

Mr. **Sharp**. The size of the fleet is a very relevant factor, the total number of cars to be manufactured, how many are below the average and how many are above.

Mr. **Stockman**. I am only suggesting to the gentleman that 29 is the average of only the compact and subcompact.

Mr. **Stucky**. The question at that point gets to be, what is a large-size car in that time frame.

Mr. **Stockman**. I would like to follow up this with Volkswagen. What is the fuel economy average of new cars being marketed in Germany today, and what is the price of gasoline?

Mr. **Hutchinson**. The fleet average is in the low thirties. The price of gasoline is in the $2.50 per gallon range.

Of course, this is the reason why our cars tend to be more fuel efficient; it is not as though something has happened overnight. In Germany, the price of fuel has always been much greater than in the United States. This has been a prime consideration in Europe. It has caused the down-sizing to take place over a 20-year period—the radial tires, aerodynamic design, the special energy saving devices, like fans that only run while the engine is heated—all these things have been built over a period of time because of the high price of fuel.

Mr. **Stockman**. What you are saying is, at a petroleum cost of $85 a barrel delivered at the pump, the market in West Germany is still only demanding a 30-mile-per-gallon fleet, not 40, as Senator Jackson has proposed, or EPA, the other day? Would that be the case?

Mr. **Hutchinson**. Yes, sir. I think our position, too, is, as our competitors indicated, that we think there is enough pressure in the marketplace to encourage manufacturers to build fuel-efficient cars and that we are going to react faster to that marketplace pressure than a new law.

Mr. **Stockman**. You are suggesting we would not necessarily want to extend numbers beyond 1985, but keep that as a floor?

Mr. **Hutchinson**. Yes, sir.

Mr. **Sharp**. I think the American manufacturer would be able to answer more directly, but is it not a fact that something is underway in a fairly dramatic fashion in redesign of automobiles in this country, that it is hard to know where it is going to end up, but there is a dynamic now which perhaps did not exist 10 years ago?

Mr. **Stockman**. I appreciate the gentleman's yielding.

Mr. **Sharp**. I will be happy to yield to counsel for a few questions.

Mr. **Finnegan**. Thank you, Mr. Chairman.

Mr. Stucky, the Chrysler witness earlier suggested that the term "passenger automobile" be changed to "motor vehicle" in H.R. 6908, which I understand is the bill you are supporting. Have you any comments about that proposal?

Mr. **Stucky**. As I understand what was being proposed, all of the elements of the bill with the exception of that one term would remain the same. I think there are some fundamental elements that are important to stay in there, from what I understand of what is acceptable in the bill.

I would not have any objection to that changing on the assumption that the American Motors balance continues to be addressed by that simple change. I think that is true from what I understand.

I think, second, it would not really detract from getting the support that we need for that bill. Fundamentally, we have no objection to that.

Mr. Finnegan. Referring to the bill itself, particularly the new subparagraph (g) that was added to the bill, it provides, commencing with model year 1981, the EPA shall exclude for any manufacturer up to 150,000 passenger automobiles manufactured by that manufacturer, but which do not qualify as domestically manufactured, if—and it has several items, six of them—the first one is, if at least 50 percent of the cost of the manufacture is attributed to value added in the U.S. or Canada.

First of all, who determines what that cost is, and how is that provided to the EPA, and what costs are included?

Mr. Stucky. There has been a regulation issued which defines what cost of manufacture is. I can't cite the regulation number at the moment, but it is a guide that we use and we will submit that.

Mr. Finnegan. Do you mean that this language is to be referred to the existing regulation?

Mr. Stucky. Yes, sir.

Mr. Finnegan. You can't be sure of that the way this is drafted at the present moment?

Mr. Tighe. The intent here, Mr. Finnegan, is to coincide with the existing regulation under the law itself.

Mr. Stucky. I think that is the intent. We are not trying to introduce anything new. We understand what that regulation is and it is the intent for that to remain.

Mr. Finnegan. To be exactly the same?

Mr. Stucky. Yes.

Mr. Finnegan. That would define what cost means, as I understand it, but how is that information to be transmitted to EPA or to the Secretary or how does this work?

Mr. Tighe. It would be transmitted to the Secretary as part of the application, and the showing would have to indicate that the 50-percent content as referred to under the——

Mr. Finnegan. When you say "application", when would this application be submitted?

Mr. Tighe. The application would have to be submitted by the manufacturer at the point of the model year in which manufacturing would commence, and the allowance of the inclusion of up to 150,000 passenger cars would be made applicable upon approval of that application to that model year.

Mr. Finnegan. There is no reference to the word application in this proposal. Is that something that you are presuming under existing regulation?

Mr. Stucky. You are referring to section 3? I am reading (i).

Mr. Tighe. If you turn to (g)(iii)——

Mr. Finnegan. That is what you mean by the application?

Mr. Tighe. That is correct.

Mr. Stucky. That is the plan.

Mr. Finnegan. You say it is going to be a plan which has to be approved by the Secretary. What kind of process do you anticipate the Secretary would have to go through to approve it, and how long would it take?

Mr. STUCKY. We anticipate that the Secretary would have to issue a regulation. I believe, typically, it would be done indicating what data needed to be submitted. That would need to be done prior to the start of the model year, obviously, in which you make the application.

The year we are talking about would be 1983; so, somewhere prior to the 1983 model year that would be the point at which we would make the application to the Secretary, indicating that we are commencing production in excess of 50 percent, but below 75 percent, and then by the end of the 3 succeeding years we will reach the 75 percent level.

Mr. FINNEGAN. What if he does not approve the plan? You are out?

Mr. STUCKY. We are out.

Mr. FINNEGAN. Do you contemplate hearings and all that sort of thing?

Mr. STUCKY. Not necessarily.

Mr. FINNEGAN. But it could happen?

Mr. STUCKY. I think that the Secretary could, but it would not be contemplated, because I would think that the conditions which have to be met are pretty straightforward. We would hope that we would not get into a complex regulation in order to justify the requirements as outlined in the bill.

Mr. FINNEGAN. What I am driving at is that I see some vagueness in the language. It seems to me that DOT could ask for a great deal of information and get into a very complex situation and process of hearing. That is why I am trying to find out what you anticipate this language would do.

Mr. TIGHE. You raise a good question. This was considered in detail and in depth on the Senate side. As indicated in the Commerce Committee report on this point, the plan to be submitted to the Secretary is to be considered not a complicated plan and, hopefully, would not necessitate any form of regulatory hearings in order for the plan to be accepted.

The plan basically would be a showing on the part of the manufacturer making application of all the elements contained in (i)(iv) as a part of subparagraph (g) of this bill.

Without question, as contained again in the subcommittee report language, the Secretary would have the ability to review the plan and ask for additional information if necessary, if in the Secretary's opinion the information submitted was not in total compliance with these requirements set forth here.

Mr. FINNEGAN. How could he avoid the possibility of having either hearings or at least an opportunity for public comment on the plan, then at that time, taking the situation, the possibility, of your competitors or others raising objections to the particular plan?

Mr. TIGHE. My only response is that the intent here, hopefully, is that it would not result in such complications.

Mr. FINNEGAN. But it is not clear?

Mr. TIGHE. No, it is not clear; it is not precise.

Mr. FINNEGAN. I guess I am raising the question of what is the purpose of a plan. I can understand applying for this, but a plan implies to me that there will be something much more than just a clear application that we are setting forth what the costs are, the model types involved, stating that they have not been previously domestically manufactured.

You could have a certification to all these things and you would still come out with the same—you hereby certify that you have met these criteria.

The question is, what does the plan do, and what additional information could result out of it and therefore cause you difficulties if you try to get this approved?

Mr. STUCKY. The intent is, to take perhaps a simple example, that you start at 50 percent the first model year. That is a base; that is understood; that is a known. Then for each of the 3 succeeding years you go from 50 to 60, 70, 75, and here are the actions that you take for each of those years, and those actions in all likelihood will be increased sourcing of parts in the United States.

What was visualized as a plan for each year clearly is the action you are going to take to increase your content. That is what I would understand the plan to be.

Mr. FINNEGAN. At the end of the first plan, if you say to the Secretary you have not achieved what you said you were going to do in the first one, is that not likely to be contentious?

Mr. STUCKY. If you are significantly below, if you said you are going to be at 60 percent and you came out at 52, my reaction would be that that would be a fair question to ask of us.

Mr. FINNEGAN. It also says such manufacturer has not previously submitted another plan which has been approved. I don't understand what that means.

Mr. STUCKY. It means you can only submit a plan at one time only.

Mr. FINNEGAN. For that model year?

Mr. STUCKY. Period. Forever. We could not come back then in 1988 or 1984, if you will, and ask on a different car line for this same set of circumstances to continue.

Mr. FINNEGAN. The last item is—any such automobile, the assembly of which is completed in Canada, imported in the United States not later than 30 days following the end of the model year. Thirty days is a pretty exact figure. Can you people live with that?

Mr. STUCKY. Yes, that is no problem.

Mr. FINNEGAN. Thank you, Mr. Chairman.

Mr. SHARP. Thank you, gentlemen. We appreciate your time and attention to this matter.

The subcommittee will be taking up this question in the near future. We appreciate your cooperation.

The subcommittee stands in adjournment.

[Whereupon, at 12:30 p.m., the hearing was adjourned.]

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